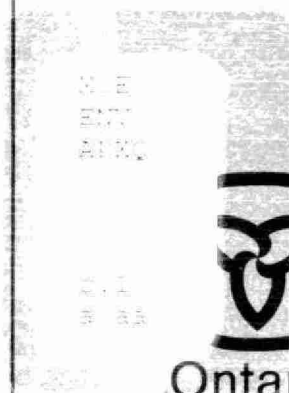


# AUDIT OF ABATEMENT STRATEGIES, PLANS AND PROCEDURES

## 1975–1978

Ministry  
of the  
Environment

The Honourable  
Harry C. Parrott, D.D.S.,  
Minister

Graham W. S. Scott,  
Deputy Minister

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E N V I R O N M E N T A L   N O I S E

AUDIT OF ABATEMENT  
STRATEGIES, PLANS AND  
PROCEDURES

1975—1978

## A C K N O W L E D G E M E N T

The assistance of the staff of the Noise Pollution Control Section in gathering the data and typing the report is acknowledged. Also acknowledged is the contribution of L.G. Kende, H. Gidamy, H.O. Cotter and student L. Martin in preparing the first draft. A special thanks also to our photographer Leo Butko for his valuable contribution.

MOE  
ENV  
APXQ      apxg



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## REPORT OF THE AUDIT

This audit of the activities of the Noise Pollution Control Section and other related Branches of the Ministry of the Environment is unique in that it is the first attempt made to chart the progress of environmental noise control over the last five years in Ontario. While this examination has not been an audit in the purest sense, this report provides the basis for a more systematic program audit in future years.

PART I     The provincial environmental goals have been defined in terms of the Ministry, Branch and Section roles. A short historical note shows how the environmental noise control program has developed since its inception. It is interesting to note that the noise program costs about 10½ cents per capita annually.

PART II    The list of Provincial Officers designated by the Minister of the Environment. These Provincial Officers are different from others designated by the Minister pursuant to Section 82 of The Environmental Protection Act in that they are specialists in acoustics and environmental noise control.

PART III   The annual reports of the Noise Pollution Control Section have been reproduced for the years 1973/1979 for easy reference.

PART IV    In the section on Industrial Noise Control, twelve typical files have been audited to determine how effective Ministry engineering assessment techniques are. The initial screening indicates a good success rate in terms of the final result. More than 200 projects have already been assessed. Successive audits will focus on further significant projects.

The Tables on pages 22 through 25 are useful in demonstrating how the audit was planned and how each project was evaluated. Pages 27 through 41 provide a more detailed narrative of the analysis.

The section on municipal noise control by-laws reveals the steady progress resulting from a key government policy decision. In the Fall of 1974 draft noise regulations were set aside and subsequently The Environmental Protection Act was amended to give local municipalities power to adopt noise control by-laws. Approximately 30% of the urban population of Ontario is now covered by modern by-laws which can effectively control local noise problems. However, success in this endeavor will depend on the will of Council. Meaningful implementation and enforcement depends also on the voice of the local population, the Ministry can only provide the tools.

It is expected that the trend towards adoption of noise control by-laws will accelerate with time. The next audit of this program will look at the implementation and enforcement success rate.

#### PART V

The audit of the land use assessment role of the Noise Pollution Control Section indicates that this is perhaps the most significant activity of the Section. While the Ministry of Housing and Regional Governments and municipalities are responsible for implementation of The Planning Act, this Ministry is, in fact, the key agency depended on by government to assess and determine the environmental suitability of new land use schemes. As in other jurisdictions, transportation noise has proved to be a major concern. Because of widespread public complaint and dissatisfaction, the government has recently implemented costly noise control policies to protect residents near major freeways. Good land use planning can avoid similar problems in new subdivisions. The success of the program depends on municipal implementation and control.

The audit shows that in some cases certain municipalities and developers do not follow through with the terms of the subdividers agreement. These binding agreements, which are painstakingly developed and approved by this Ministry, generally require the developer to provide specific site noise control measures. Where the noise control measures are not completed, noise complaints may be expected in the future.

Non-completion of the terms of the subdivider's agreement may lead to civil suit or prosecution in extreme cases. This aspect of the technical assessment program will be further investigated in successive audits.

Another problem revealed by the audit is the small but inherent inaccuracies of existing noise prediction techniques. Further work has to be done to refine the assessment procedure so that predicted noise levels after the institution of site noise control measures corresponds closely to actual measured noise levels after project completion.

The Table on page 48 lists by category the type of regular land use approvals being processed. Many other projects related to highway, airport and transportation system development are not included in the Table. Neither are environmental assessment projects subject to The Environmental Assessment Act and the various federal statutes included in the Table.

The Table on page 50 is a useful summary of the public response to surveys in new subdivisions. The overwhelming impression from the results in the Table is that more attention should be given to public education on noise problems. To avoid future complaints, new residents should be made aware of the potential for noise impact and the steps that have been taken to minimize environmental noise levels.

PART VI Municipalities have found that noise control by-laws passed pursuant to The Municipal Act are difficult and expensive to enforce. Successful prosecution generally depended on the production of many corroborative witnesses in order to convince the Court of the presence of unusual noise or noise likely to disturb the inhabitants. (Section 354.118). The amendment to The Environmental Protection Act should remove the need for extensive corroboration and thus make successful prosecution of noise offenders more certain.

Future audits will look into the municipal success rate.

PART VII \* The statistics on complaint investigation show that the total number of complaints processed by the Section has remained relatively constant as municipalities become more adept and competent in the handling of noise complaints.

Figure 76 on page 134 shows that noise complaints increase markedly when the weather warms up in April as windows are left open. The summer months are traditionally the busiest months. Noise that disturbs sleep and rest is the most complained of annoyance.

\* Table 7 on page 135 illustrates the increasing role of municipalities and regional offices in funneling noise complaints to this Section. In 1975, when the activities of the Section was confined to the Metropolitan Toronto and Hamilton-Wentworth regions, only 14% of the complaints were referred through the regional offices. By 1978 fully 84% of the noise complaints come from municipal authorities via Ministry regional and district offices.

PART VIII The training program of the Ministry was forced on the Section as a result of the void in the then existing training programs catering specifically to environmental acoustics technology in enforcement and land use planning. More than 700 trainee weeks of education in noise control has been made available to the public and concerned agencies over the past 4 years. A text, Acoustics IV, is being written by an external educator on contract to the Ministry. This will complete the training texts used in the program and made available to the public.

#### Publications:

Several significant policy statements and documents have been issued in Ontario over the past two years and these are listed here for convenience.

- Model Municipal Noise Control By-Law, August, 1978
- Land Use Policy Near Airports, March, 1978
- Guidelines on Noise and New Residential Development Adjacent to Freeways, April 1979
- Invited Comments on US EPA Rail Carrier Docket No. ONAC 79-01, June, 1979

## MANAGEMENT BY RESULTS 1977-78, PLANNED & ACTUAL PERFORMANCE

### OBJECTIVE:

To investigate the sources of sound and vibration, evaluate their impact on the environment and develop measures for their control within a Federal/Provincial/Municipal framework.

### 1977-78 PLANNED RESULTS:

- . Assist 40 municipalities to develop bylaws.
- . Provide training and certification for 75 noise control officers.
- . Finalize a manual of procedures for the measurement of vehicle and other machine noises and provide a compendium of workshop materials for training in noise control.
- . Develop guidelines for formal applications of approval and assessment and for land-use impact analyses.

### 1977-78 ACTUAL RESULTS:

- . 37 municipalities were provided with assistance in developing noise bylaws. 6 bylaws were approved.
- . 161 municipal and provincial employees attended the six training courses provided. 32 noise control officers were certified.
- . The manual of procedures for the measurement of vehicle and machine noises was finalized. The compendium of training material was begun but not completed.
- . Guidelines for applications of approval, assessment and land-use impact analysis were developed.
- . 368 new noise complaints were investigated. Technical comments were provided on 450 projects.
- . Processes to transfer complaint investigations to municipalities and the technical comment role to regional offices were commenced.
- . An audit program was commenced.

1978-79 PLANNED RESULTS:

- . Audit provincial noise control programs and provide an annual report.
- . Complete regionalization of the Provincial noise control program.
- . Draft a regulation for vehicle noise and labelling of noise devices.
- . Research noise standards for construction site noises.
- . Finalize development of the training manual series by developing Acoustics V.
- . Encourage municipalities to develop municipal bylaws and provide training and certification for municipal officers and regional staff.
- . Conduct a Provincial survey of microwave radiation exposure to assess hazards to humans.

RESOURCES: (\$000's)

<u>Activity</u>	<u>1977-78</u> <u>Estimates</u>		<u>1977-78</u> <u>Actual</u>		<u>1978-79</u> <u>Planned</u>	
	<u>\$</u>	<u>Man-yrs.</u>	<u>\$</u>	<u>Man-yrs.</u>	<u>\$</u>	<u>Man-yrs.</u>
Pollution Control Planning	728.0	30	634.0	30	770.0	29
	<hr/>		<hr/>		<hr/>	



## MANAGEMENT BY RESULTS 1978-79, PLANNED & ACTUAL PERFORMANCE

### OBJECTIVE

To investigate the sources of sound and vibration, evaluate their impact on the environment and develop measures for their control within a Federal/Provincial/Municipal framework.

### 1978-79 PLANNED RESULTS:

- . Audit provincial noise control programs and provide an annual report.
- . Complete regionalization of the Provincial noise control program.
- . Draft a regulation for vehicle noise and labelling of noise devices.
- . Research noise standards for construction site noises.
- . Finalize development of the training manual series by developing Acoustics V.
- . Encourage municipalities to develop municipal bylaws and provide training and certification for municipal officers and regional staff.
- . Conduct a Provincial survey of microwave radiation exposure to assess hazards to humans.

### 1978-79 ACTUAL RESULTS:

- . An audit of selected Provincial noise control activities was undertaken.
- . The enforcement aspects of the Provincial noise control program were regionalized.
- . Continuing encouragement was provided to municipalities to develop municipal bylaws. Training and certification for municipal officers and regional staff was provided.
- . Three acoustics training manuals were revised.
- . The final report on the Model Municipal Noise Control Bylaw was issued.
- . Training was provided to selected staff on the technology of microwave radiation hazards.
- . 448 new noise complaints were investigated and 418 new land-use projects were technically assessed.

1979-80 PLANNED RESULTS;

- . Regionalization of Land Use Noise Impact Assessment program.
- . Regionalization of Industrial Project Noise Assessment program.
- . Audit of selected noise control and noise abatement projects and provide annual report.
- . Research noise standards for vehicle noise other than trucks.
- . Develop noise guidelines for inclusion into agricultural code of practice.
- . Develop noise protocol for assessment of major Ontario Hydro projects and for noise abatement.
- . Research noise standards for construction equipment noise.
- . Finalize development of the training manual series by developing Acoustics V.

RESOURCES: (\$000's)

<u>Activity</u>	<u>1978-79 Planned</u>		<u>1978-79 Actual</u>		<u>1979-80 Planned</u>	
	<u>\$</u>	<u>Man-yrs.</u>	<u>\$</u>	<u>Man-yrs.</u>	<u>\$</u>	<u>Man-yrs.</u>
Pollution Control Planning:	\$706.0	25	\$708.0	25	\$683.0	23

PART I PROVINCIAL ENVIRONMENTAL GOALS AND NOISE PROGRAM RESOURCES.

1 Goals of the Ministry of the Environment

1. "To ensure proper control over the emission of contaminants into the natural environment for the purpose of achieving and or maintaining pre-determined standards of environmental quality."
2. "To ensure that proposed programs, projects, policies and legislation in or affecting Ontario incorporate the necessary environmental safeguards through direct involvement in the co-ordination and development of a provincial land use plan."
3. "To develop specialized techniques for the restoration and enhancement of environmental quality."

Goals of the Pollution Control Branch

"To assess the current and potential effects of various pollutants and develop abatement strategies, plans and support procedures."

Goals of the Noise Pollution Control Section

"To investigate sources of sound and vibration, evaluate their impact on the environment and develop plans, policies and programs for their control within a Federal/Provincial/Municipal framework."

2 PROVINCIAL ENVIRONMENTAL NOISE PROGRAM RESOURCES

While this section of the Audit deals primarily with the head office staff and resources, it is recognized that staff in the Ministry's regional and district offices and other Branches, are also involved from time to time in the provincial environmental noise program.

In 1974, when the Ministry of the Environment was reorganized, responsibility for noise and vibration was explicitly retained as a head office function within the Pollution Control Branch. It was the intention to gradually develop the expertise and technology by responding initially to complaints in Metro Toronto only. In succeeding years the orbit of noise investigations has grown to include first the City of Hamilton and Hamilton-Wentworth regional municipality and then eventually the Golden Horseshoe stretching from Niagara Falls to Oshawa. By 1977 noise complaints throughout the province were investigated on a "resources available" basis.

For the purposes of estimating the per capita cost of the provincial environmental noise control program, it is assumed that the total Regional and other Branch resources devoted to noise control activities including land use planning approximately equals one quarter that of the Head Office commitment. Thus, the expenditures of the Noise Pollution Control Section have been adjusted by a factor of 1.25 to reflect the estimated total Ministry of the Environment involvement in noise control on a per capita basis.

A Table listing the Approved Dollar Resources and Human Resources allocated to the Noise Pollution Control Section appears below for each year since 1974 together with the adjusted expenditure per capita.\*\*

<u>Fiscal Year</u>	<u>Complement (Noise Section)</u>	<u>Approved Funding (\$ ,000's)</u>	<u>Actual Expenditure (\$ ,000's)</u>	<u>Adjusted Per Capita** \$</u>
1974/75	26 + 8 *	555.0	535.0	0.085
1975/76	26 + 4 *	618.0	607.0	0.094
1976/77	24 + 4 *	633.0	690.0	0.107
1977/78	24 + 4 *	728.0	649.0	0.099
1978/79	24	651.0	708.0	0.108
1979/80	23	683.0	-	0.105 ***

\* Unclassified staff.

\*\* Ontario Municipal Directory, based on population data for lower tier municipalities.

\*\*\* Estimated



Ontario

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Ministry of the  
Environment

PART II PROVINCIAL OFFICERS

Pursuant to Section 82 of The Environmental Protection Act, 1971, I hereby designate (and re-designate in the case of those who are now Provincial Officers) the following persons, while employees of the Ministry of the Environment, as Provincial Officers for the purposes of The Environmental Protection Act, 1971 and the regulations.

Benner, S.D.  
Bradbury, D.  
Butko, L.  
Clifford, J.  
Cotter, H.O.  
Dixit, A.K.  
Eaton, S.H.  
Fumerton, D.  
Granell, E.  
Gidamy, H.  
Kende, L.G.  
Krajewski, C.  
Krammer, F.  
Manuel, J.  
Murphy, G.A.  
Pugh, P.G.  
Purchase, R.

  
\_\_\_\_\_  
MINISTER OF THE ENVIRONMENT

Dated at Toronto this 3rd  
day of August, 1977.

### PART III ANNUAL REPORTS

#### ANNUAL REPORT 1973/74

A six-point noise control program was established for implementation throughout Ontario. The phases of this program are as follows:

- (a) prepare and implement a regulation to control noise from roadway vehicles;
- (b) prepare and implement a regulation to control noise from stationary sources;
- (c) establish ambient noise level objectives;
- (d) develop a model municipal by-law for use by municipalities;
- (e) prepare and implement a regulation to control noise from recreational devices;
- (f) develop expertise and guidelines to be able to comment on land use changes as they are affected by noise.

To implement this program, the initial emphasis was given to those areas that had resulted in the majority of noise complaints received by the Ministry. Roadway vehicles and stationary sources accounted for 80 per cent of all complaints; hence, regulations to control noises from these two sources were given priority. The Noise Pollution Control Section produced a draft regulation to control the noise from roadway vehicles and implemented a field trial of the regulation in Hamilton in March, 1974. This and other field trials will be the final test of the regulation before implementation. In preparing this regulation, approximately 1,000 measurements of many different types of vehicles were made.

The second regulation, to control stationary source noise, is in the final stages of preparation and will be field tested during the summer of 1974. To gather data for the drafting of this regulation, inspectors investigated noise complaints in both Toronto and Hamilton. During the year, approximately 350 complaints were received of which 130 were investigated. It is interesting to note that although the regulation was at this time only in the draft stage, 60 of the complaints were resolved through the efforts of the Noise Pollution Control Section staff.

#### Community Studies

In addition to preparing regulations to control noise, community studies were undertaken in London, Woodstock, Kingston, North Bay and Sault Ste. Marie. These studies were conducted to provide an understanding of noise levels in communities, and at the same time, to provide information for the establishment of ambient noise level objectives for the Province.

## ANNUAL REPORT 1974/75

The Section is responsible for the planning and delivery of the Ministry's Noise Control Program in line with previously set priorities. The Section is researching the control of vehicle noise and the control of stationary noise sources.

A decision was made to give Ontario Municipalities additional powers to control noise at the local level once a new Municipal Noise Control Program was developed. Accordingly, The Environmental Protection Act was amended to provide for noise control and this amendment was given Royal Assent in February, 1975. (Bill 190)

In addition, a draft Model Municipal Noise Control By-law was prepared and mailed to all Ontario municipalities as well as being widely circulated to the public and to professional and trade associations. Preparations were made to hold a series of regional workshops to explain the intent of the bylaw and to assist municipalities in writing a by-law and in training personnel.

The Section's other assigned task was to investigate noise complaints and obtain abatement of specific noise problems while developing an investigatory and abatement procedure for field personnel. In 1974-75 the Section investigated 507 noise complaints. About 300 complaints (mostly involving air conditioners) were satisfactorily settled with voluntary co-operation from offenders. Certain problems such as arterial traffic noise and others such as blasting, gun shots and drop-forge vibration proved to be beyond simple solution.

A special training course in Acoustics Technology for designated municipal personnel was developed with training manuals written by Section staff. In addition, the Impact Analysis Unit carried out several transportation (rail, air and road) noise studies that will be used to develop criteria and prediction techniques for land use assessment.

## ANNUAL REPORT 1975/76

The Environmental Protection Amendment Act, 1974 (No. 2) was proclaimed on October 8, 1975, thereby amending The Environmental Protection Act, 1971 to permit municipalities to adopt a noise bylaw under the provisions of the Act.

A Model Municipal Noise Control Bylaw was prepared for the use of municipalities. This bylaw can be adopted in whole, or in part, as required. This model bylaw was revised early in 1976, and includes a number of technical publications which effectively become guidelines for sound and vibration control under the provincial legislation.

As a result of rapid advances in solid state electronic technology, sound measuring monitors recently acquired by the Ministry and deployed in the field for noise investigations have resulted in significant improvements in the assessing of noise impacts on new subdivisions and residential areas. In all, 150 subdivisions seriously affected by noise were assessed on behalf of the Ministry of Housing. On the recommendation of this Ministry, appropriate noise control measures are now being required of developers of all new housing.



## ANNUAL REPORT 1976/77

The Noise Pollution Control Section received 556 noise complaints in 1976-77. Many complaints were voluntarily abated while others required investigation by field staff before feasible abatement measures could be recommended. One prosecution and two Control Orders initiated under The Environmental Protection Act, were successfully concluded. One Control Order, however, has been appealed in the Courts and at year-end was still before the Environmental Appeal Board.

The Model Municipal Noise Control Bylaw was revised and the second edition was issued in May 1976. Several thousand copies of the bylaw were circulated to municipalities, industry, commercial enterprises, and public bodies. During the year, 30 municipalities contacted the Ministry and started to develop Noise Control Bylaws under provisions of Section 95a of the Act. Six of the municipalities completed draft bylaws and presented them to the Ministry for approval: Hamilton, Etobicoke, Guelph, North Bay, Barrie, and Lakefield.

The second year of the Environmental Acoustic Technology Training Program was completed; more than 100 additional candidates received instruction in noise control techniques during the year. Two new training manuals on "Acoustics Technology in Land Use Planning" were published, and a new training course for land use planners was successfully introduced.

The Noise Pollution Control Section has completed more than 400 assessments of new subdivision projects with respect to noise under the provisions of the Planning Act. Plans for new subdivisions are assessed in relation to noise impacts from industry, highways, railways, and aircraft.

Work continued with regard to: (1) truck noise control, as part of the Model Municipal Noise Control Bylaw Program, and (2) impulsive noises concerning which a study was under way at year-end related to the drop forging industry.

## ANNUAL REPORT 1977/78

This Section received 368 new noise complaints in 1977-78 while the City of Toronto received 778 noise complaints.

Five municipalities adopted noise control bylaws which, pursuant to the legislation, were approved by the Minister of the Environment. Of these, the bylaws of North Bay, Barrie, and Guelph were printed for general distribution and information.

The third year of the Environmental Acoustics Technology training program was completed. More than 100 candidates received instruction in noise control and in noise abatement techniques in land use planning. Four of the Ministry training manuals in the series were revised and reprinted to meet public demand.

The Noise Pollution Control Section provided technical analysis and comment on 410 new land use projects including new subdivisions and changes in official plans. It also analyzed potential noise impacts on 40 new industrial projects submitted to the Ministry for approval.

A railway noise symposium co-sponsored by CP Rail and the Ministry was held in Toronto in May 1977 to discuss environmental and land use problems arising from noisy railway activities. Many federal and provincial agencies concerned with the issue attended and contributed to the symposium. A comprehensive report on the symposium and background documents was later circulated to all participants.

Two noise-related projects were funded by the Ministry under the Experience '77 program, and considerable data was gathered by students working under professional supervision. In addition, work continued on four major in-house projects related to aircraft noise, freeway noise, impulsive noise, and truck noise. A number of interim reports were prepared for distribution and comment.

## ANNUAL REPORT 1978/79

This Section received 448 new noise complaints in 1978-79. Complaints of excessive noise from industry resulted in 165 investigations. Permission has been granted to prosecute one persistent offender. Air conditioner noise (95), blasting concussion noise (73) and 115 miscellaneous complaints of noisy activities were also investigated. Provincial Officers were called to provide expert testimony in 12 actions launched by various municipal and private prosecutors.

The final report of the Model Municipal Noise Control By-Law was published in August 1978. Twenty municipalities have adopted noise control by-laws pursuant to Section 95a of The Environmental Protection Act. This accounts for more than 20 percent of the urban population of the province. A similar number of by-laws are presently under preparation for eventual submission to the Minister of the Environment for his approval and signature.

The fourth year of the Environmental Acoustics Technology training program sponsored by the Ministry was successfully completed. An external contract has been awarded to provide a draft Acoustics IV training manual, the final text in the planned series of training materials.

The Noise Pollution Control Section has provided technical comment on more than 2000 new land use proposals and industrial projects in the four years since the noise impact assessment program was formalised. Increasing attention, however, has been given to assessing class environmental impact statements; inter-government studies on transportation noise problems; and use of lands subject to Ministerial zoning orders. Two new policies affecting land uses have been formalised, the first regulates land use near airports and the second proposes to regulate land uses near existing or designated freeways.

A number of major research projects have been sponsored and are being guided by the Noise Pollution Control Section. These include a study of the effects of transportation noise (funded by the Provincial Lottery Trust Fund), an investigation of noise emissions from a railway marshalling yard with the objective of developing a mathematical model of the noise contours (funded by the Transportation Development Agency of Transport Canada) and a study of community response to railway noise (funded by Experience '78). The latter study data has been used by the United States Environmental Protection Agency in preparing US Railroad Noise Rules.

Three noise related projects were funded under the Ministry Experience '78 program. The internal project on railway noise is referred to above. External study projects on transportation noise were also awarded to two Ontario Universities.

## PART IV INDUSTRIAL & MUNICIPAL NOISE CONTROL

### A. INTRODUCTION - ASSESSMENT OF INDUSTRIAL PROJECTS

The Audit should ideally provide an evaluation of the effectiveness of Ministry programs. The time frame allowed for this audit did not permit the evaluation of all of the more than 200 cases previously assessed. A dozen cases were selected on a random basis to be a representative sample. The audit evaluation was made by site visit and where applicable by noise survey, to verify the resultant sound levels. The effectiveness in any particular case may be judged in comparison with the design goal.

The 12 examples audited represent two types of activity from which all the cases originate;

- (1) rectification of a noise problem originating from the annoyance and subsequent complaints of residents; and
- (2) the evaluation process in an application for Certificate of Approval.

Three cases were the results of complaints, one of which was in fact the indirect result of laying a charge and obtaining a conviction. Nine cases were the result of the approval process, and were referred to the Noise Pollution Control Section for assessment. In practice a third type of activity exists, representing referrals by the Ministry of Housing, municipalities or Regional MOE offices as the outfall of the planning process.

The audit revealed that three of the twelve cases investigated have not yet implemented noise controls. In two cases the implementation is planned for mid 1979, while one case is still under modification by the owner and any abatement measure is to be re-evaluated. Eight of the remaining nine cases are in full compliance and one exceeds the design goal by 3 dB and is thus judged not acceptable. Assuming that the cases still to be implemented will be in compliance, a 92% effectiveness may be registered. The effectiveness in bringing about a quieter environment through designed abatement methods is probably close to the 90% mark.

DESCRIPTION		ABATEMENT		SOUND LEVEL (dBA)		
SOURCE	RECEPTOR	PROPOSED & PLANNED	APPROVED	PRE-ABATEMENT MEASURED OR PREDICTED	DESIGN GOAL	MEASURED LEVEL AND COMMENTS
1. Open air burner, Warren Bitulithic, Kitchener	Resid. property 808 Pressler St. 190m from burner	Exhaust silencer-enclosure Cremer-Kurtz design	Silencer as proposed without rain hood	67	53	53 Acceptable
2. Roots Blowers (3) Bradford sewage treatment plant.	Resid. property 114 Lee St. 300m from blowers	-2 alternatives a. Plenum enclosure & Duct silencer b. Reactive in-line silencers	Reactive in-line silencers	52	45 remove 500 Hz peak	43 500 Hz peak removed -Acceptable
3. Air handling units, increased traffic. Chrysler Truck Plant, Windsor	Residences along east side of Pillete Rd.	-5m high berm, alternate location of plant's driveway, auto-loading compound and spur line	As proposed	Hourly Leq 56-60	Hourly Leq 55 nite 60 day	Hourly Leq 54 at 11-12 pm. 60 at 4-5 pm. -Acceptable
4. Baghouse fume fans. Esco Foundry, Port Hope	Resid. property 20 Nelson St. 150m from fans	Fan duct lagging, stack silencer	As propped	65	55	Abatement not yet implemented, Completion planned for April/79

TABLE 1 Analysis of Industrial Projects.

The procedures for assessing the potential impact of stationary noise sources in a proposed or existing industrial or commercial setting may be very simple (a single noise source) or may be extremely complex (a petrochemical refinery with literally thousands of noise sources). The steps to be taken in assessing the project may be summarized as follows:

Legislation:

- 1) The Environmental Protection Act  
Section 8 - Certificate of Approval  
Section 6 - Control Order  
Section 10 - Program Approval  
Section 14 - Prohibition
- 2) The Environmental Assessment Act
- 3) The Pits & Quarries Act
- 4) The Planning Act
- 5) The Municipal Act
- 6) Federal Legislation

Guidelines:

The technical information required in preparing a submission for approval is principally contained in the technical publications of the Model Municipal Noise Control By-Law.

- 1) NPC-134
- 2) NPC-133
- 3) NPC-132
- 4) NPC-131
- 5) NPC-119

Analysis:

Upon receipt of the required information, preferably in the form of a report prepared by a competent technical person, the Ministry will check the submission statements for accuracy and for validity. Approval generally follows if the natural environment is shown to be adequately safeguarded from excessive noise emissions.

DESCRIPTION		ABATEMENT		SOUND LEVEL (dBA)		
SOURCE	RECEPTOR	PROPOSED & PLANNED	APPROVED	PRE-ABATEMENT MEASURED OR PREDICTED	DESIGN GOAL	MEASURED LEVEL AND COMMENTS
5. Drop Forges Great Lakes Forging Ltd., Windsor	Resid. property 1240 Matthew Brady 180m from plant	Enclosing operation, acoustically treated ventilation slots along bldg. walls, untreated slot in roof	As proposed, with inclusion of acoustic treatment to roof slot.	Hourly Leq 54 Drop forge 62	Hourly Leq-50 Drop Forge 50	Hourly Leq 51 Drop forge 51 -Acceptable
6. Exhaust fans (164) GM. truck plant, Scarborough	Residences along Comstock Rd. 460m from plant	No abatement proposed	As proposed	56	55	46 -Acceptable
7. Concrete mixer trucks, delivery trucks. Day & Campbell Ltd., Hamilton	Residences along Upper Wellington St. #'s 1065,1071 and 1059	6m high concrete wall -moving the site of loading operation, moving screen	As proposed	up to 86	62	62 -Acceptable
8. Centrifugal fan, Tonolli Co. Ltd., Mississauga	Resid. property 2430 Dixie Rd.	No abatement proposed	Discharge silencer, model "44DS 88-L-44"	61	55	58 Not Acceptable

TABLE 2. Analysis of Industrial Projects(cont.)



DESCRIPTION		ABATEMENT		SOUND LEVEL (dBA)		
SOURCE	RECEPTOR	PROPOSED & PLANNED	APPROVED	PRE-ABATEMENT MEASURED OR PREDICTED	DESIGN GOAL	MEASURED LEVEL AND COMMENTS
9. Machine shop, compressor shed Aetna Structures Ltd., Rexdale	Resid. property 2 Helmsdale Cr. 59m from shop	Enclosing all manufacturing oper- ations	As proposed	56	46	45  -Acceptable
10. 115kw Diesel generator, Bell Canada sub-station Hamilton	Residences along 19th St. East 37m from diesel generator	Exhaust silencer VR5	As proposed, plus absorptive treatment to diesel ventilating plenum	60	48	Proposed abatement not implemented. Completion planned for summer/ 1979.
11. 100kW diesel generator, Bell Canada sub-station Dundas	Resid. rproperty 45 Main St. 43m from diesel generator	Exhaust silencer VR5	As proposed plus absorptive treatment to diesel ventilating plenum	63	53	Proposed abatement not implemented Modifications to instal- lation lay-out planned by the proponent. Re-evaluation in progress
12. Wheelabrator scrubber centri- fugal fan . Magna-Inter- national, Inc. Scarborough	Residences on Brimley Rd. 110m from fan installation	No abatement proposed	As proposed	Ambient( no traffic) 48  Ambient( with traffic) 62	48	Ambient(no traffic) 45  Ambient(with traffic) Leq 67

TABLE 3. Analysis of Industrial Projects(cont.)



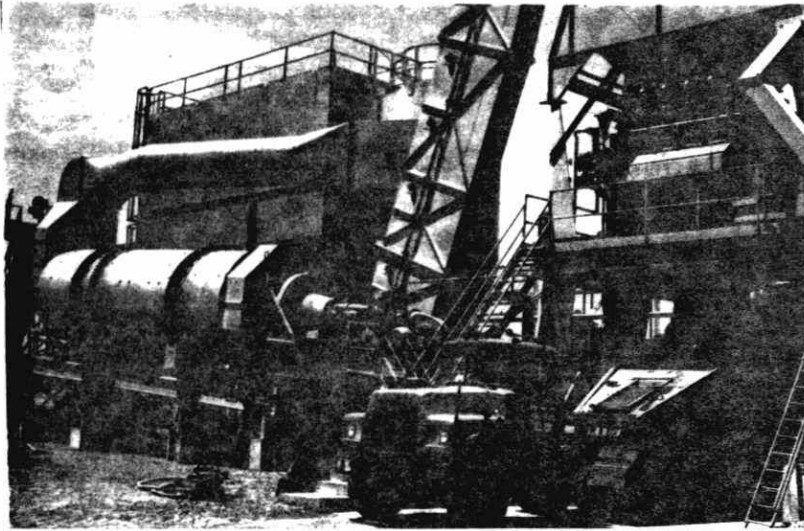


Fig.1 Warren Bithulithic Ltd., Kitchener

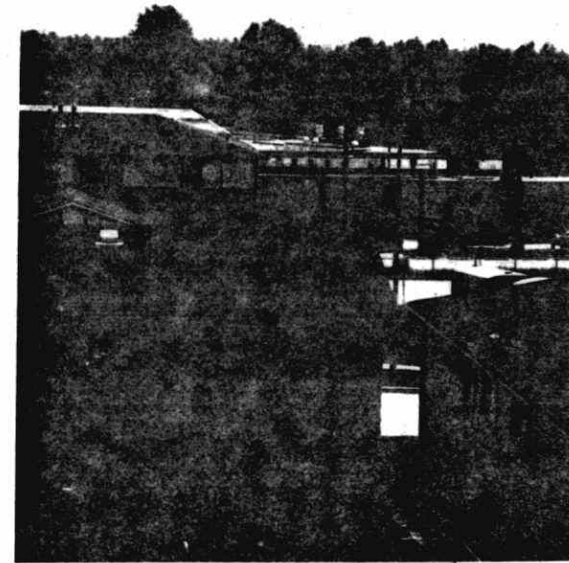


Fig.3 Rootes Blower Silencers  
on roof in background.

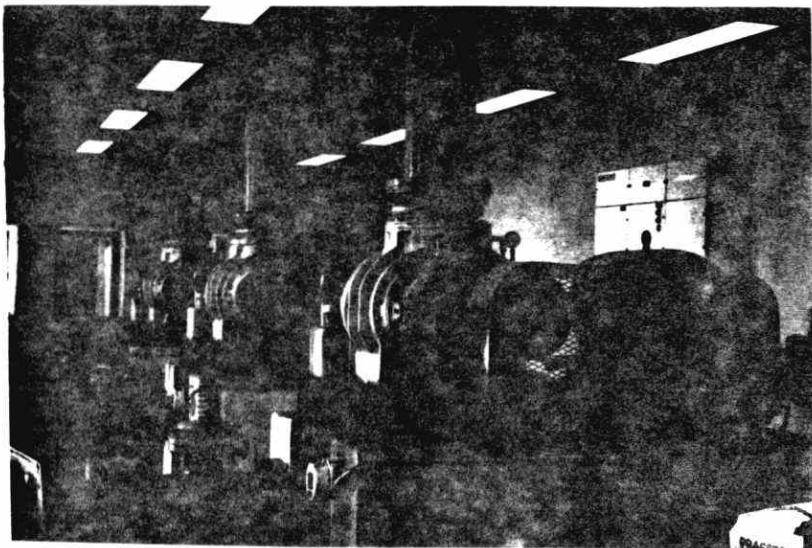


Fig.2 Bradford Sewage Plant. Three Rootes  
blowers in the compressor room.



Fig.4 Silencer on Blower Intake.

## DETAILS OF AUDIT OF COMPLETED PROJECT

### 1. WARREN BITULITHIC LTD., KITCHENER

#### NOISE SOURCE: Open Air Burner

The company operates a gravel pit and asphalt plant at 2145 Ottawa Street S., in the City of Kitchener. The surrounding land use is mainly agricultural and open space, however, there are some residences in close proximity to the asphalt plant.

A noise complaint lodged by the nearest resident, at 808 Pressler St. (190 m from the open air burner), was followed up by a NPCS noise survey and subsequently the company agreed to abate the offending noise. An exhaust silencer-enclosure proposed by an independent consultant was evaluated by NPCS in November 1977 and certain modifications were recommended to achieve the desired sound attenuation.

A 15 dB reduction in the sound level at the complainant's residence (from 67 dBA to 52 dBA) was expected as a result of the abatement proposal. The modified abatement proposal was approved by NPCS in March 1978, and the subsequent follow-up measurements indicated an actual noise level of 53 dBA at the residential property nearest to the asphalt plant had been achieved. The abatement action, resulting in a noise level 1 dB above the design goal, is considered successful.

### 2. BRADFORD SEWAGE TREATMENT PLANT

#### NOISE SOURCE: Roots Blowers (3 units)

A noise complaint in the form of a petition signed by over 70 residents occupying houses along Lee Street, in Bradford was lodged in June, 1977. After consulting with the plant management the NPCS recommended two alternative abatement measures; a plenum-enclosure with duct silencer or a reactive in-line silencer, both designed to provide a 25 to 30 dB reduction for the noise sources. The reactive in-line silencer was finally selected and installed.

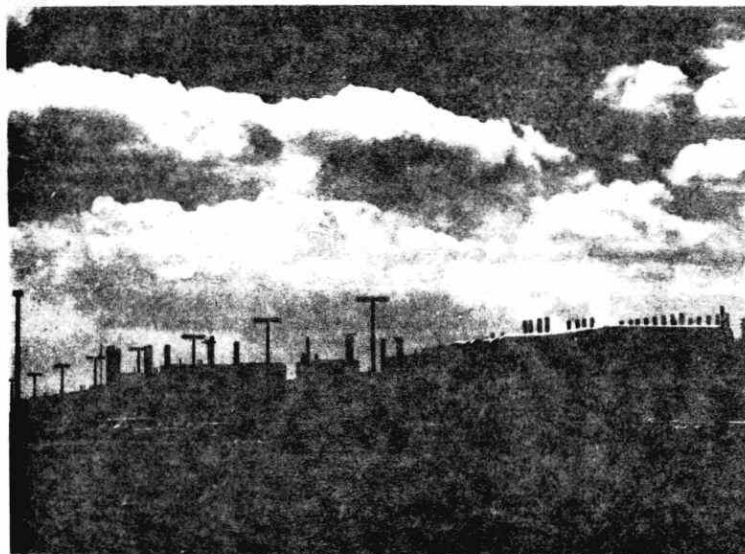


Fig.5 Chrysler Truck Plant, Windsor.  
Exhausts & Mechanical Penthouses  
from rear of plant.

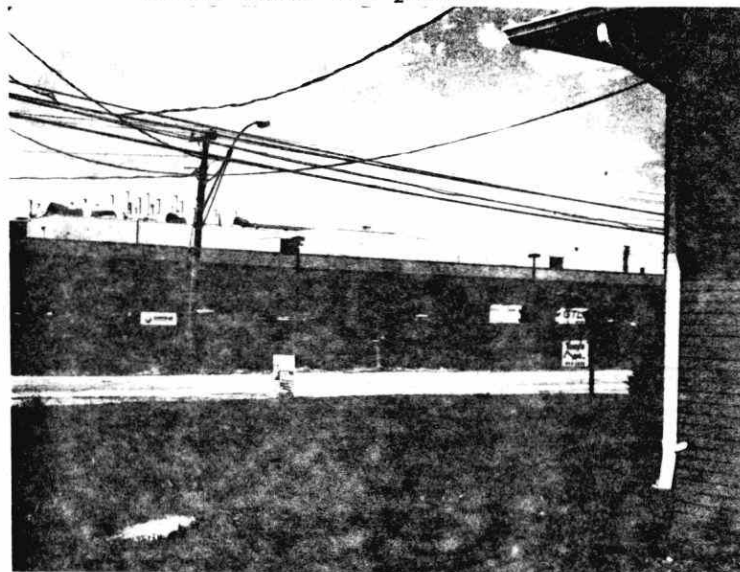


Fig.6 Chrysler Truck Plant, Windsor.  
View from nearest neighbour.

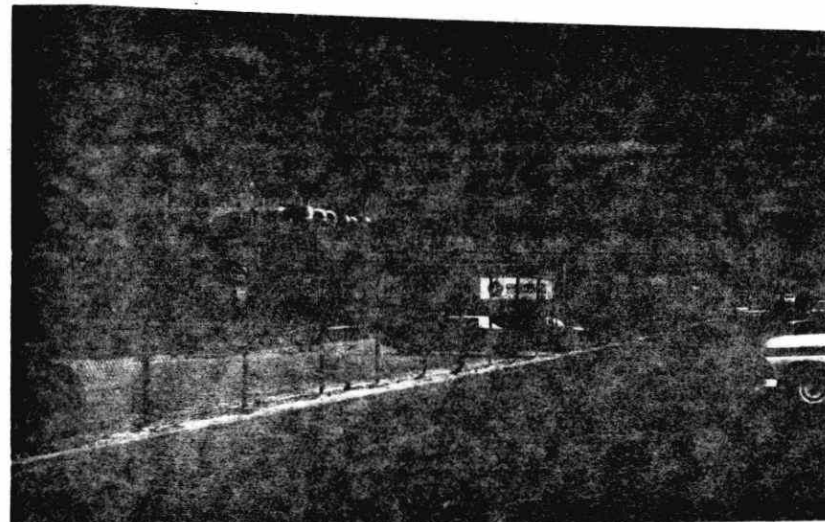


Fig.7 Chrysler Truck Plant, Windsor. Parking Lot.

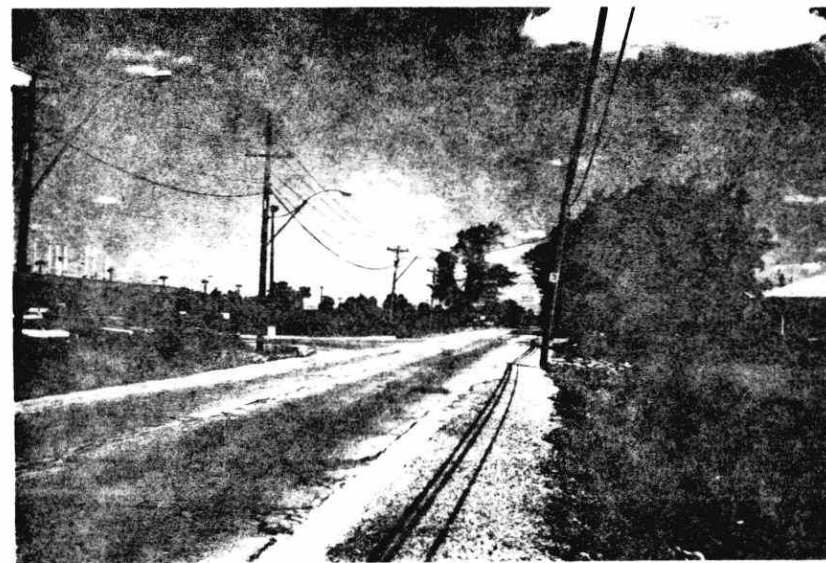


Fig.8 Chrysler Truck Plant, Windsor.

The pre-abatement sound level was 52 dBA measured at the nearest residential property (114 Lee St.). The sound was 7 dB in excess of the existing ambient of 45 dBA and was disturbingly tonal at a centre frequency of 500 Hz. As a result of the abatement action, the noise generated by the blowers was reduced to a level below that of the existing ambient. The 500 Hz peak sound was effectively removed.

According to the information obtained from the chief operator of the plant there have been no further complaints from local residents concerning noise emissions from the plant.

3. CHRYSLER TRUCK PLANT, WINDSOR.

NOISE SOURCE: Increased Traffic Activity and Air Handling Units

Expansion of the Chrysler Truck Assembly Plant was permitted by the Amendment No. 17 to the Official Plan for the City of Windsor. The application for Certificate of Approval was submitted in October 1975. The potential or existing noise sources identified in the noise impact assessment included:

- (i) increased truck traffic from the company driveway,
- (ii) the loading of railway cars and tractor-trailers,
- (iii) the coupling of rail cars on the spur line and shunting operations,
- (iv) air handling units, roof mounted.

The ambient hourly  $L_{eq}$  levels used as the plant expansion design goal ranged from 56 dBA to 60 dBA.

A 1.5 m berm was proposed to shield residences across Pillete Rd. Also, an alternative location was selected for the Plant's main driveway, the autoloading compound and the spur line in order to minimize noise impact. All these abatement measures in addition to a routine silencing of air handling units were approved as proposed.

Recent audit measurements indicate a 54 dBA  $L_{eq}$  at night and 60 dBA  $L_{eq}$  during the day, both of which meet the design goal.

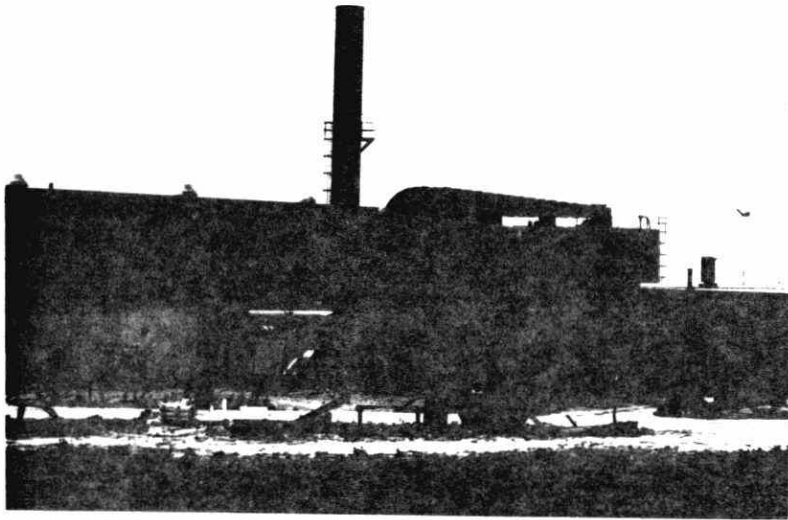


Fig. 9

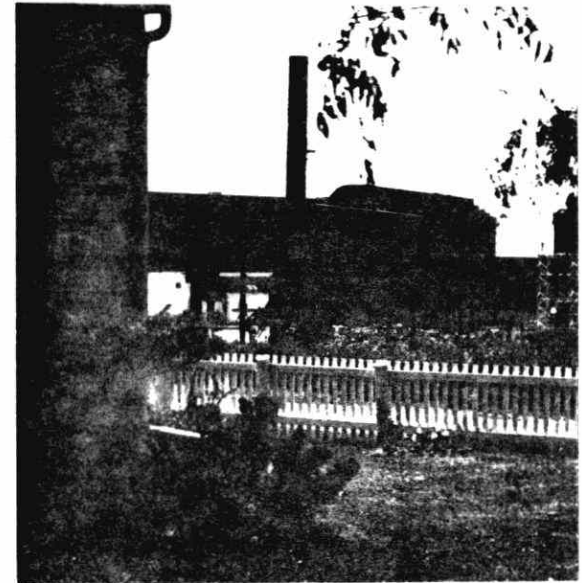


Fig.11

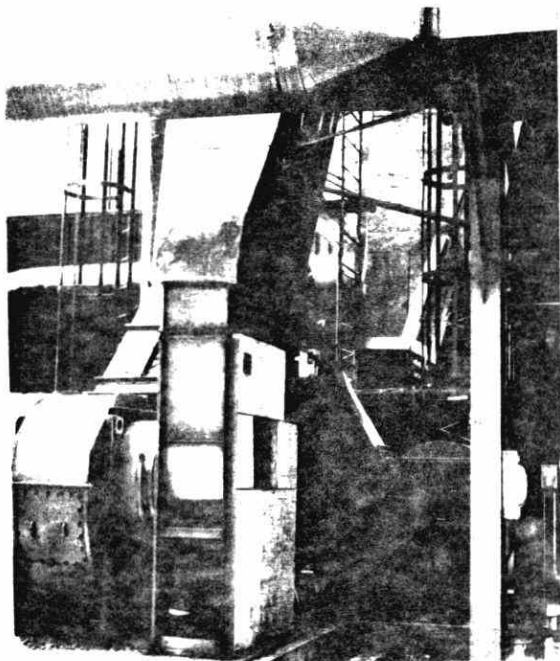


Fig.10

ESCO Foundry, Port Hope.  
Views of Baghouse Fan,  
Stack and close-up of  
Duct Insulation Treatment.

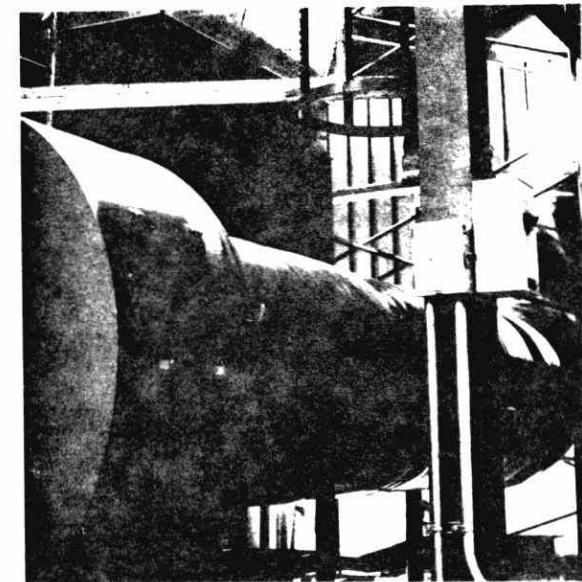


Fig.12



4. ESCO FOUNDRY, PORT HOPE.  
NOISE SOURCE: Baghouse Fume Fans

A submission for Certificate of Approval for a new steel foundry was made in April 1976. It was proposed as an additional development to an existing facility.

Potential noise sources as identified in a consultants report included; a furnace, burners, fume systems, roof vents and cooling tower. Details of predicted boundary noise level calculations as well as proposed abatement measures were reviewed and approved by NPCS.

As a result of a noise survey conducted on completion of the expansion project a 6 dB excess above the ambient sound level was noted. Further investigation of individual installations indicated that the fume fans did not meet vendors' noise emission specifications. Requirements for modifications were subsequently made known to the project manager. These modifications included lagging of the fan duct and silencing the discharging stack.

Follow-up audit measurements indicate that the previously established excess above the ambient has not changed. According to ESCO, implementation of the recommended abatement measures is planned for mid-1979.

5. GREAT LAKES FORGING LTD., WINDSOR  
NOISE SOURCE: Drop Hammer Forging

The firm located in the east end of the City of Windsor, applied for approval of expansion of the existing drop hammer forging facility in early 1976. In view of the complaints from nearby residents about noise from the existing operations, it has been proposed by NPCS to enclose the drop forge in a new building designed by an acoustical consultant.

NPCS proposed that the forges be enclosed in a new building designed to appropriate acoustical specifications.

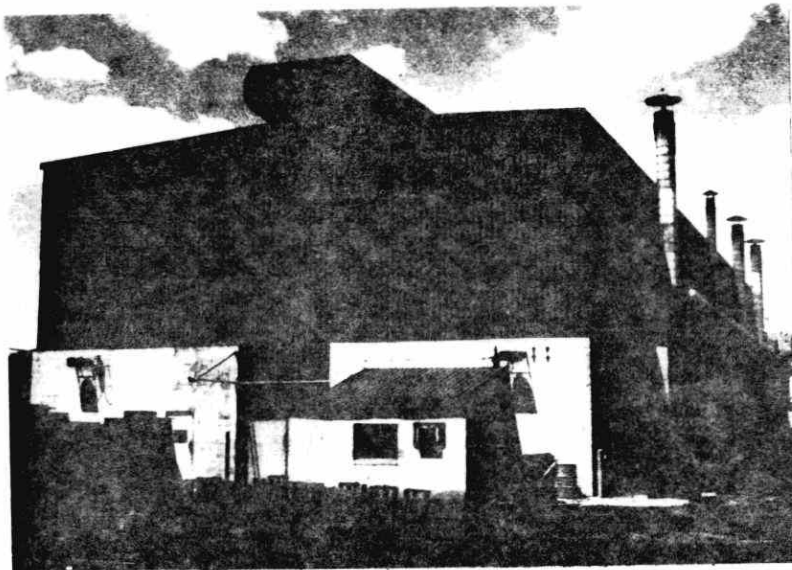


Fig.13 Great Lakes Forging, Windsor.  
View of New Building designed for  
Natural Convection Ventilation.

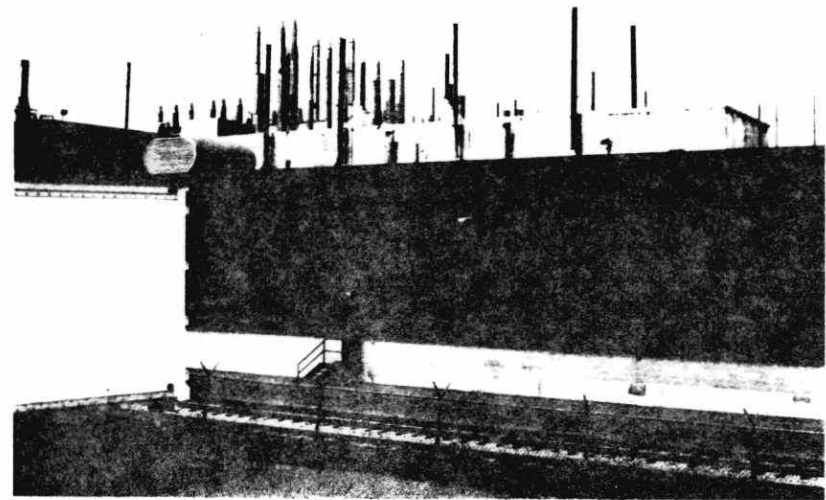


Fig.15 General Motors, Scarborough.  
View of Plant Showing Exhaust  
Stacks on Roof.



Fig.14 Forge Hammer in Operation

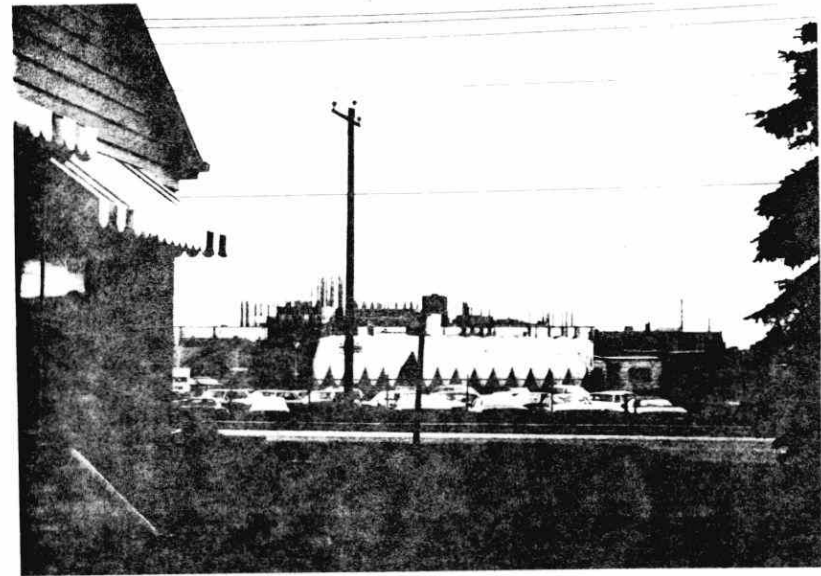


Fig.16 View of General Motors Plant From  
One of Nearest Neighbouring Residences.

The proposed design was approved with an additional recommendation to acoustically treat the roof slot. This proposal however, was not incorporated into the final building design. The design goals were for a 50 dBA hourly  $L_{eq}$  and a 50 dBA level for the drop forge. The pre-abatement levels were 54 dBA and 62 dBA respectively. Audit measurements following completion of the expansion project resulted in a 51 dBA hourly  $L_{eq}$  and 51 dBA drop forge level. The noise abatement measures can therefore be considered reasonably successful.

Since forging operations require that adequate cooling and ventilation be provided for employee comfort, attempts to defeat the noise control criteria may be anticipated with the passage of time. Further program auditing is recommended.

6. GENERAL MOTORS TRUCK PLANT, SCARBOROUGH  
NOISE SOURCE: Exhaust Fans (164 Units)

The proposed air handling system was analysed for noise emission in March 1974. It had been predicted that the noise generated by fan units would not exceed the existing ambient level at residences along Comstock Road, across from the Plant. Although there are no longer any residences on Comstock Road, the audit measurements were conducted at the reference location. The results were 9 dB below the design goal of 55 dBA. The ambient noise level (including plant operation) remained basically unchanged, from the pre-installation conditions.

7. DAY & CAMPBELL LTD., HAMILTON  
NOISE SOURCE: Concrete Mixer Trucks, Delivery Trucks

The company operated a concrete batching and concrete block manufacturing plant across from a residential area at Upper Wellington Street in the City of Hamilton. Noise complaints from local residents indicated the following three sources as major contributors to annoyance:





Fig.17 Truck Shown Entering Property.

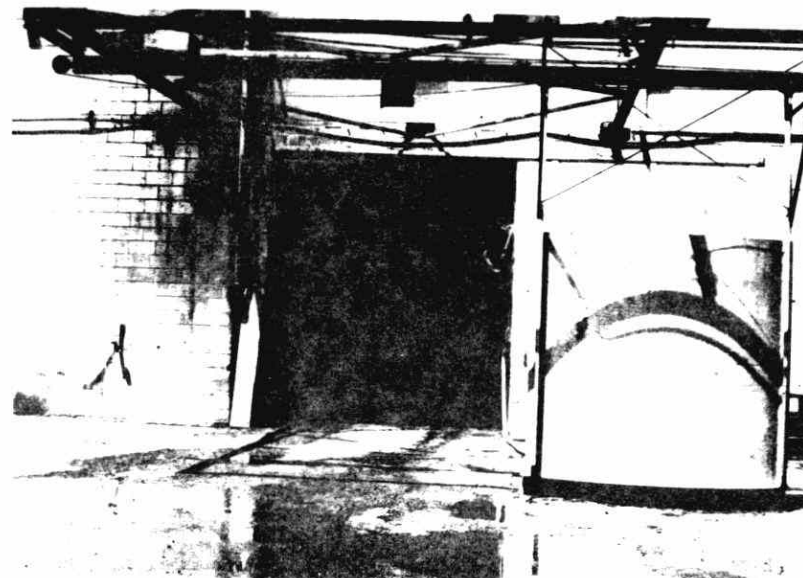


Fig.19 Opening is Loading Dock for Concrete Mix. Noise Shield Suspended on Gantry is moved in front of truck during loading.

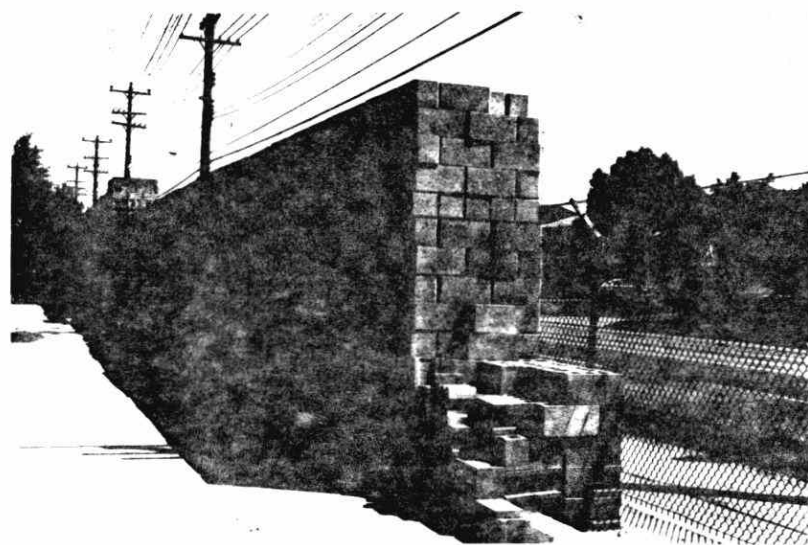


Fig.18 Concrete Block Storage & Seasoning. Wall forms a Sound Barrier.

Day & Campbell Ltd.  
Upper Wellington St.  
Hamilton.

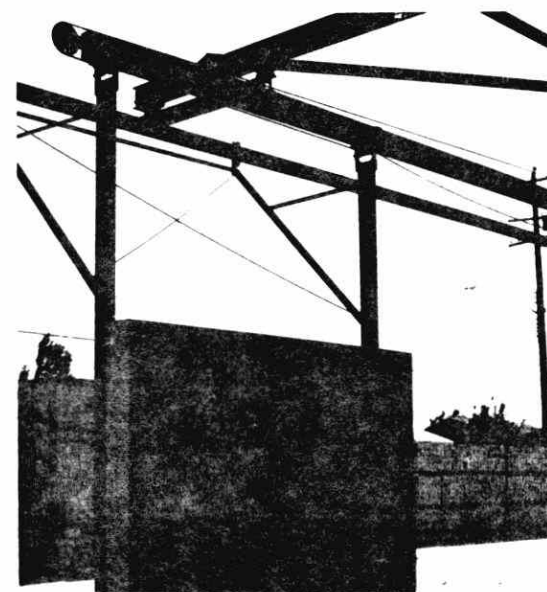


Fig.20 View Showing Absorptive Surface of Noise Shield Facing Truck Radiator.

- (i) Bulk cement carriers which park for up to 2 hours in the front yard to discharge their cargo.
- (ii) Concrete delivery trucks mixing their load and washing down in the front yard.
- (iii) Plant cleaning operations in the middle of the night.

As a result of an NPCS investigation the sound levels were found to be up to 86 dBA at points on complainants property. Noise abatement action was recommended to include the following measures:

- (i) move the parking area and unloading facilities for the bulk carriers to the rear of the plant,
- (ii) erect a 6m high concrete block barrier along the property line on Upper Wellington St. Also provide a movable acoustical shield to be positioned in front of the delivery trucks prior to the mixing and washing-down operations,
- (iii) achieve abatement of noise from night-time operations through procedural changes within the plant.

Delays in implementing the recommended NPCS measures resulted in charges being laid. Day & Campbell were found guilty and abatement measures were finally implemented by June, 1976.

Follow-up audit measurements indicated that the design goal of 62 dBA was achieved during regular plant operation.

8. TONOLLI COMPANY LTD., MISSISSAUGA,  
NOISE SOURCE: Centrifugal Fan, Wheelabrator Scrubber

A submission for Certificate of Approval for a centrifugal fan was made in August 1977, without the inclusion of any noise control measures. The company's consultant based the evaluation on existing daily ambient noise levels. Since the plant is



Fig.21 Tonolli Canada Ltd., Mississauga.  
View of Scrubber Stack & Residence.

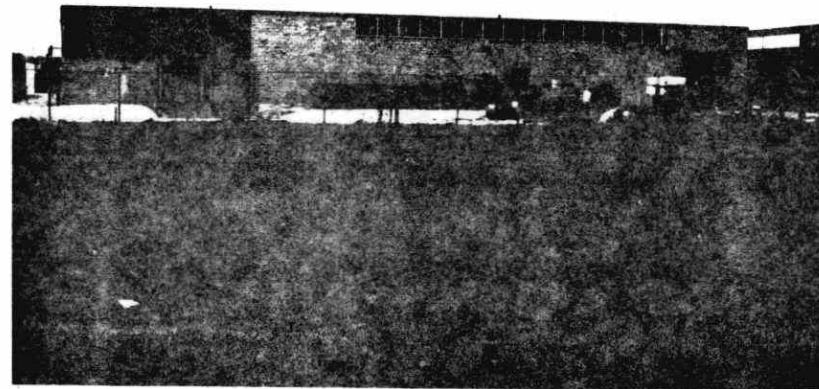


Fig.23 Aetna Structures Ltd., Rexdale.  
View of rear yard and loading dock.

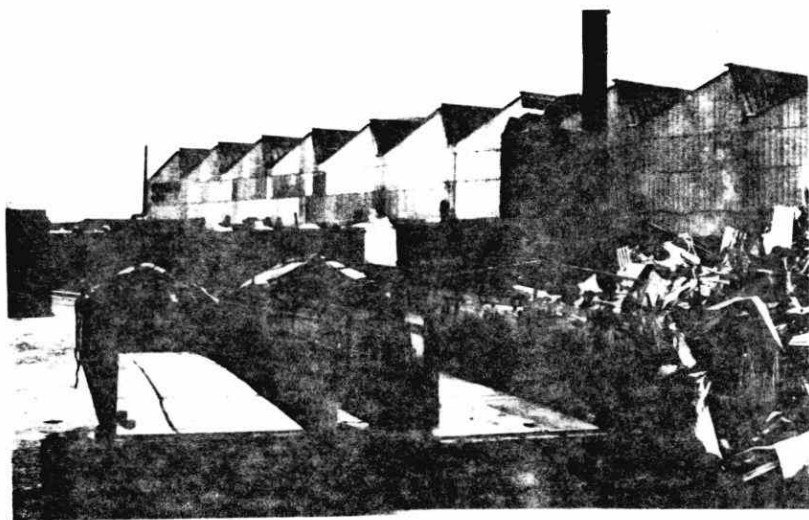


Fig.22 View of Exhaust Stack and Scrubber.  
Tonolli Canada Ltd., Mississauga.

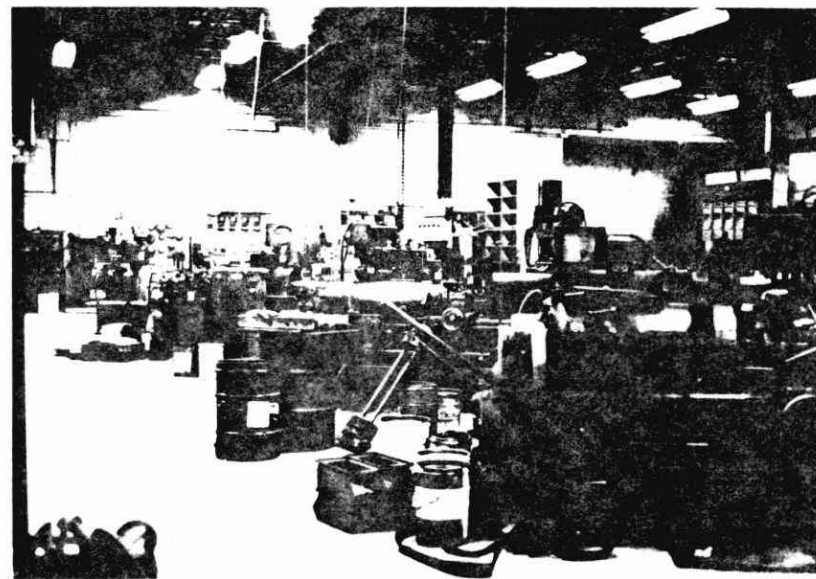


Fig.24 Aetna Structures Ltd., Rexdale.  
View of Plant Interior.

operating 24 hours a day, night-time ambient levels were investigated by NPCS to determine the adequacy of the proposal. As a result, the fan emission levels were found to be 6 dB above the design goal of 55 dBA and discharge silencing was recommended. With this provision the application was finally approved by NPCS.

The design goal of 55 dBA, established from the ambient level analysis (on the nearest residential property) was exceeded by 3 dB during the audit measurement.

As a result of the audit, the firm will be required to check the validity of the noise emission specifications for the fan as well as the noise reduction properties of the installed outlet silencer in order to provide the necessary noise abatement.

9. AETNA STRUCTURES LTD., REXDALE

NOISE SOURCE: Machine Shop Expansion, Compressor Units

The company, operating a machine shop in Rexdale, applied for approval of the expansion to their facility in July 1978. Their property boundary abutts a 26 m wide Ontario Hydro right-of-way. Residential backyards, separated from the machine shop by this right-of-way, are located at a distance of 90 m from the rear of the Aetna building.

Prior to the application by the company a number of noise complaints had been lodged by local residents. Shipping operations as well as the use of power tools in the rear of the shop building have also been identified as major sources of noise. Additionally, sound levels of up to 56 dBA, generated by the industrial activities, were in the excess of the ambient level.

It was recommended that the proposed expansion be confined within the shop building; the shipping door be kept closed; and that no continuous outdoor operations be permitted. The application was approved subject to the above conditions. Audit measurements, taken after the expansion, indicate that the design goal of 46 dBA ambient sound level at the residential backyards was achieved.

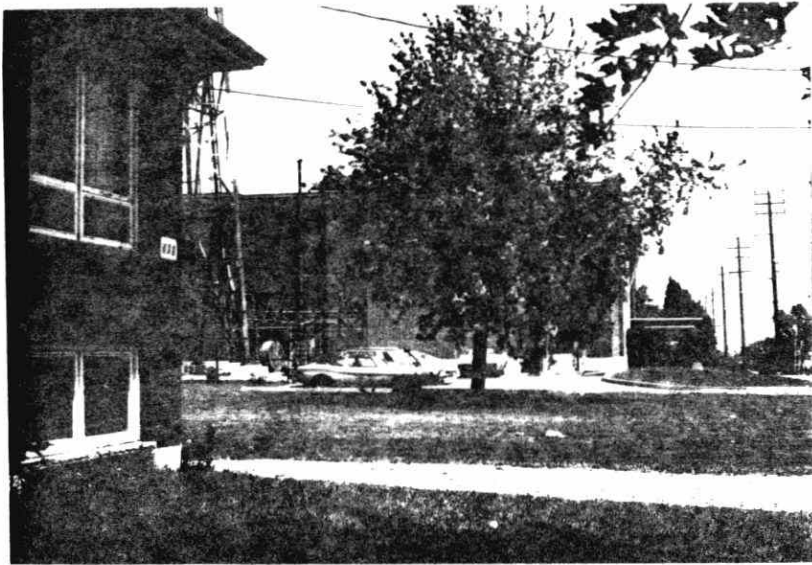


Fig.25 BELL Canada Substation, Hamilton.  
View from nearest neighbour.

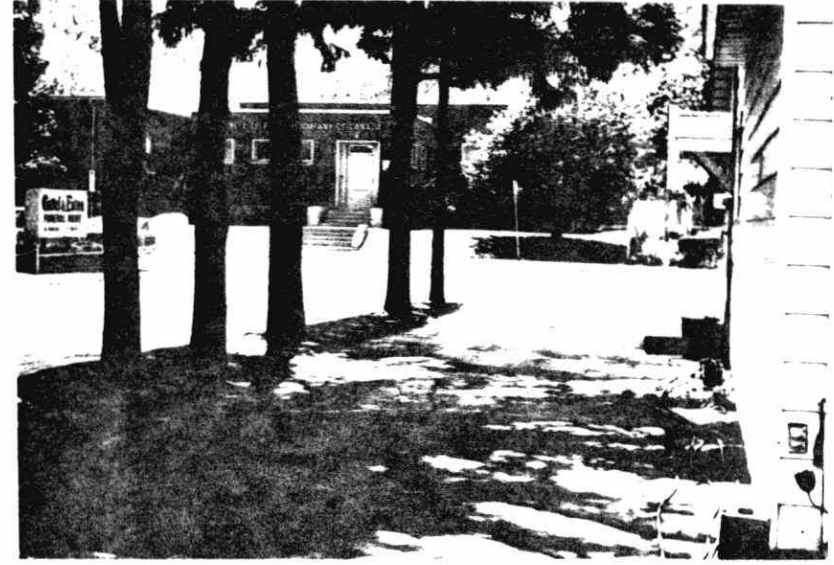


Fig.27 BELL Canada Substation, Dundas.

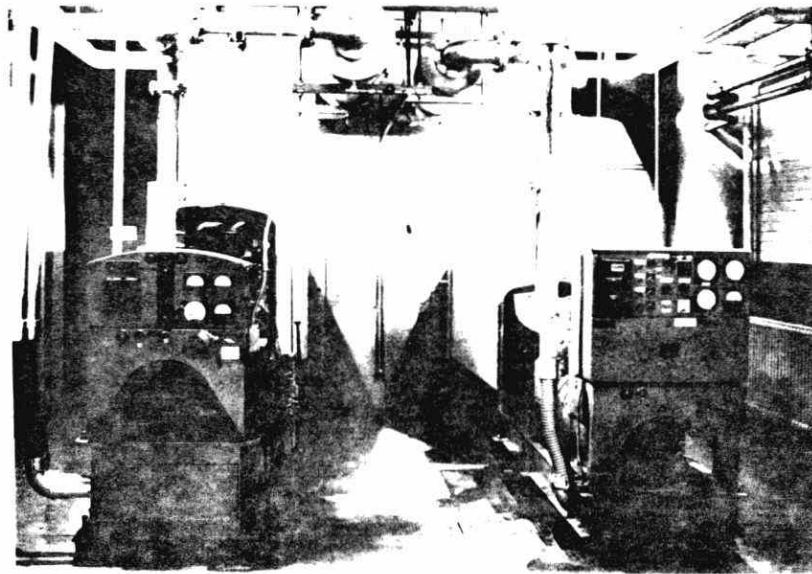


Fig.26 Interior view of Hamilton station  
showing stand-by diesel engines  
and Exhaust Mufflers.

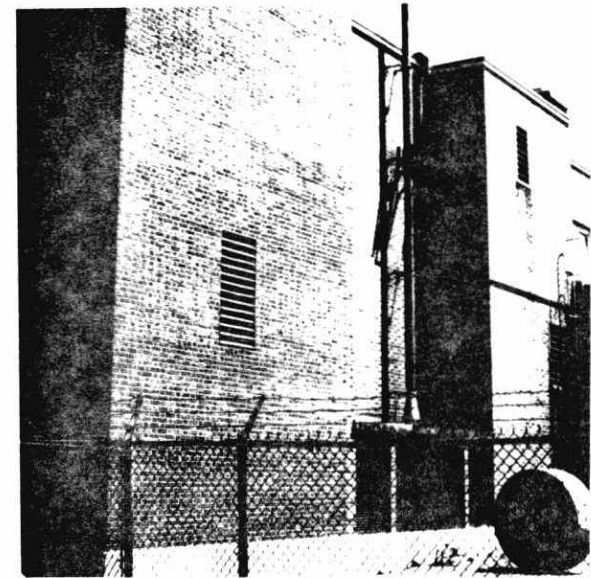


Fig.28 View of Diesel Exhaust  
Stack and Fresh Air  
Intake Plenum.



10. BELL CANADA SUBSTATION, HAMILTON  
NOISE SOURCE: Diesel Generator

An application for approval of an additional stand-by 115 kW diesel generator, was submitted in October 1977. During a site inspection by NPCS it was observed that mechanical noise emitted by the installation, radiated through the ventilating intake and exhaust air plenum. This was the primary noise source as perceived by a receptor at the nearest residential location (37 m).

Sound measurements conducted on the existing diesel unit indicated an ambient noise level excess of 8 dB. As a condition of approval it was recommended that some absorptive treatment be applied to the ventilation plenum or that silencers be installed.

A written agreement by the Company to implement the recommended abatement measures was received in May 1978. However, the audit investigation of this project indicated that Bell Canada has not proceeded with the abatement as planned. According to a company representative, completion of the acoustical treatment is scheduled for July 1979.

11. BELL CANADA SUBSTATION, DUNDAS  
NOISE SOURCE: Diesel Generator

An application for approval of a stand-by 100 kW diesel generator was submitted in August 1978. An analysis of noise emissions and the existing ambient noise indicated a 10 dB excess at the nearest residential receptors. Absorptive treatment, to be applied to the ventilation plenum of the diesel generator or installation of silencers were recommended as a condition of approval.

A written agreement to implement the recommended abatement measures within six months was received from Bell Canada in October 1978. The audit investigation found that Bell had not



Fig.29 MAGNA International, Scarborough.  
View of Roof Mounted Fans.

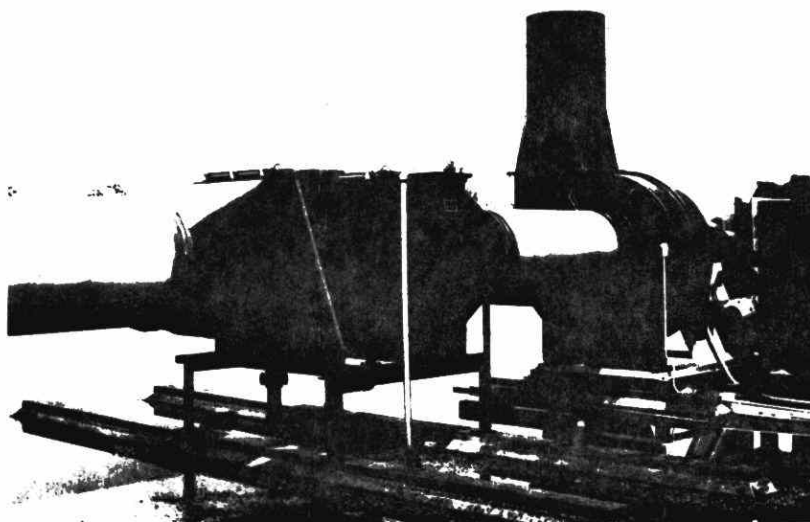


Fig.30 MAGNA International, Scarborough.  
Close-up of Fan and Duct Mounting.

proceeded with the abatement as recommended, because of planned modifications to the installation lay-out. Bell has subsequently been requested to provide details of the modifications for re-evaluation of noise impact.

12. MAGNA-INTERNATIONAL INC., SCARBOROUGH

NOISE SOURCE: Centrifugal Fan

The primary manufacturing process of this plant involves anodizing aluminum trim. Auxiliary processes include etching and stripping; however, all the operations were confined within the plant building. A proposed Wheelabrator scrubber installation was designed as an additional fume system to be located on the roof-top.

An evaluation of the sound emissions based on the information submitted by the company as well as ambient noise level measurements was carried out by NPCS. The operation of the fan was judged to have no significant affect on the existing ambient noise levels at the nearest residential location. This conclusion has been verified by follow-up audit measurements.



## B. MUNICIPAL NOISE CONTROL BY-LAWS

The Environmental Protection Act, Section 95a, was amended in 1975 to permit municipalities to pass noise control by-laws with the approval of the Minister of the Environment. To assist municipalities, the Minister announced in the fall of 1974 that he would amend the legislation, provide a model by-law and provide training for designated municipal enforcement staff as well as provide assistance in the implementation of the by-law.

The by-law adopted by the Corporation of the City of North Bay was approved by the Minister of the Environment in July 1977. Since then 15 municipalities have had by-laws approved while a corresponding number of municipalities are either preparing or discussing the preparation of a by-law to meet local needs.

### List of New Municipal Noise By-Laws

<u>Municipality</u>	<u>Classification</u>	<u>Population</u> <sup>*</sup>	<u>Approved</u>
✓ Anson, Hindon and Mindon	Township	2,387	March 1979
✓ Barrie	City	35,386	August 1979
✓ Brighton	Village	3,070	March 1979
✓ Brockville	City	20,020	In discussion
? Caledon	Town	23,314	In discussion
? Chandos	Township	520	In discussion
✓ Cornwall	City	46,152	The Municipal Act. #
? Dysart and Havelock	Township	3,379	Received
✓ Espanola	Town	5,888	Received
✓ Etobicoke	Borough	293,090	June 1979
✓ Galway and Cavendish	Township	342	November 1977
? Glenelg	Township	1,416	In discussion
? Goderich	Town	7,298	In discussion
✓ Guelph	City	71,349	October 1977
✓ Hamilton	City	307,964	2nd Reading
✓ Kingston	Township	25,820	March 1979

<u>Municipality</u>	<u>Classification</u>	<u>Population</u> *	<u>Approved</u>
✓ Lake of Bays	Township	2,046	August 1978
✓ Lakefield	Village	2,266	July 1979
✓ Leamington	Town	11,404	February 1978
? Lindsay	Town	13,687	Received
✓ Manitowadge	Township	2,979	April 1979
? March	Township	-	Received
✓ Mississauga	City	273,467	Received
✓ Napanee	Town	4,848	July 1979
? Newcastle	Town	32,006	In Discussion
✓ North Bay	City	50,417	July 1977
✓ Red Rock	Improvement District	1,566	Received
? Rolph, Buchanan, Wylie and McKay	Township	2,079	Received
? St. Catharines	City	124,304	The Municipal Act. #
? St. Thomas	City	27,059	Received
✓ Sandwich West	Township	13,989	Received
✓ Sarnia	City	52,854	August 1978
✓ Sault Ste. Marie	City	80,524	In Discussion
- Smith	Township	7,602	Received
? Timmins	City	44,251	In Discussion
✓ Waterloo	City	50,291	June 1978
Windsor	City	197,235	In Discussion
Total **		<u>1,842,269</u>	

\*\* Percentage of total Ontario population 22.0%

# By-laws passed under The Municipal Act do not require MOE consent.

\* Based on the Ontario 1978 enumerated population of lower tier municipalities as listed in the Ontario Municipal Directory 1979.

## PART V LAND USE ASSESSMENT

### Introduction:

The objective of the Noise Pollution Control Section (NPCS) audit was to review the administrative as well as the physical aspects of completed land use files.

The first phase, the administrative audit is designed to investigate the effectiveness of noise control measures incorporated into land use projects within the approval process pursuant to Section 35 of The Planning Act and other legislation. Some 37 land use files were reviewed, 28 of which were still projects in progress of construction. The remaining 9 projects had reached completion, and 8 of these projects were used for the second phase physical on-site review and audit.

This second phase, the physical review, involved a visual site inspection of noise control features and a validation of sound level predictions through on-site noise measurement. Also involved was a survey of area residents to obtain feedback on their personal perception of the effectiveness of the noise control measures finally adopted. Of the noise control measures recommended, it was important to look at those proposed compared to those implemented and the sound levels predicted compared to those actually measured on site.

### Summary of First Phase:-

Initially, a chart was drawn up, listing all the land use files processed by NPCS in the five years to 1978 from 1973 breaking them down by year and category. Of these, some 37 representative files were selected for a brief administrative review.

The following is a summary of the 37 files reviewed through comparison of the administrative process. Of those reviewed, files were referred from the following sources because potential noise impacts were anticipated:

(1) MOE Regional Offices -	20	54.1%
(2) Consultants or developers -	8	22.6%
(3) Municipalities -	6	16.3%
(4) Ministry of Housing -	2	5.4%
(5) Ministry of Transportation and Communications -	1	2.7%
TOTAL	37	100%

These 37 files could be further categorized by the stage reached in the planning and approval process as follows:

Planning Process Description -

(1) Draft plan of subdivision-	29	78.4%
(2) O.P. Amendment -	4	10.8%
(3) Draft plan of condominium -	3	8.1%
(4) Rezoning -	1	2.7%
TOTAL	37	100%

Noise in the files audited originated from nearby road traffic, rail traffic, aircraft operations and nearby industrial sources.

In isolated cases, on-site noise analysis was required for consideration of an Amendment to an Official Plan or to Draft Plan of Subdivision. In other cases, a noise study had already been completed by others and comments were made based on this data where necessary conditions for approval were formulated for consideration by the approving authority.

Initial Comments:

Initial NPCS comments were provided in 19 of the 37 land use files reviewed. Some 24 files included an independent consultant's study and report containing noise control recommendations. In some cases

more than one noise study was done. The subsequent NPCS recommendations differed in many instances from the consultant's original recommendations. In most cases these differences involved only minor modifications. Some, however, required more extensive changes such as recommending re-orientation of buildings as well as the implementation of outdoor and indoor noise control measures. Implementation of additional NPCS mandated noise control measures on site generally resulted after discussion and agreement between the interested parties.

Comments:

In 23 of the 37 files the final recommendations were found to have been incorporated into the plan design and the final recommendations were generally unchanged from the initial NPCS recommendations.

YEAR FILE CATEGORY	1973/74	1975	1976	1977	1978	TOTAL
OFFICIAL PLANS	-	-	1 (0.4%)	-	2 (0.5%)	3 (0.27%)
OFFICIAL PLAN AMENDMENTS	17 (25.7%)	28 (31.8%)	42 (16.8%)	27 (9.2%)	68 (16.3)	182 (16.3%)
SECONDARY OR NEIGHBOURHOOD PLANS	-	-	-	6 (2.0%)	4 (1.0%)	10 (1.9%)
REZONINGS	5 (7.5%)	5 (5.7%)	7 (2.8%)	7 (2.4%)	15 (3.6%)	39 (3.5%)
DRAFT PLAN OF SUBDIVISION OR CONDOMINIUM	22 (33.3%)	42 (47.7%)	178 (71.2%)	215 (73.1%)	293 (70.1%)	750 (67.3%)
BUILDING PERMIT (REVIEWS)	-	-	1 (0.4%)	21 (7.1%)	15 (3.6%)	37 (3.3%)
NEW TOWN PLAN	-	-	1 (0.4%)	-	-	1 (0.09%)
OTHER	22 (33.3%)	12 (13.8%)	20 (8.0%)	18 (6.1%)	21 (5.0%)	93 (8.3%)
TOTAL	66 (5.9%)	87 (7.8%)	250 (22.4%)	294 (26.4%)	418 (37.5%)	1115 (100%)

NOTE:- The statistics do not include special projects such as highway, airport, and transportation system developments, nor include environmental assessments and policy development projects.

TABLE 4. Land Use Assessment Project Files Listed by Category.

### Summary of Second Phase:

The noise control measures implemented in the eight sites investigated were predominantly the same as those requested by the Noise Pollution Control Section in the final recommendations. In two cases there were no differences or changes in what was finally constructed. In four other sites there were only minor differences, and of these, only one noise control measure change per site was involved. The deficiencies include: a slightly lower barrier wall; a barrier wall constructed of wood and block and not brick; a barrier with gaps along the bottom; and double-glazed windows of slightly different thickness in some units. At one site, however, none of the noise control measures were completed and there were gaps in the unfinished barrier. Only one site had more than one noise control measure differing from what was recommended. On this site openable windows were installed instead of sealed windows and the doors were not solid core and had leaks along the bottom.

Although it was not within the scope of this audit, it may be useful in the future to do a more detailed study of one of these eight files and investigate the possibility of improving noise prediction techniques.

# SUMMARY OF NOISE SURVEYS

FILE NAME	NUMBER QUESTIONED	BOTHERED BY NOISE	Aware of NOISE CONTROL MEASURES	WHAT MEASURES AND WHERE Located	EFFECTIVE?	AESTHETICS	AWARE OF NOISE PROBLEM	AWARE OF WARNING CLAUSE
McTEE	5	yes- 40% no- 0 S- 60%	yes- 60% no- 40%	yes- 60% no- 40%	yes- 20% no- 40% NA- 40%	Pleas'g- 0 Ugly- 20% Neither- 60% NS- 20%	yes- 40% no- 20% NS- 40%	yes- 20% no- 60% NS- 20%
MANCHESTER	6	yes- 33% no- 17% S- 50%	yes- 67% no- 33%	yes- 50% no- 17% NA- 33%	yes- 16.5% no- 67% NA- 16.5%	Pleas'g- 0 Ugly- 0 Neither- 100% NS- 0	yes- 84% no- 16%	yes- 16% no- 67% NS- 17%
HOLIDAY DR.	10	yes- 20% no- 70% S- 10%	yes- 80% no- 20%	yes- 50% no- 50%	yes- 70% no- 10% NA- 20%	Pleas'g- 10% Ugly- 10% Neither- 30% NS- 50%	yes- 80% no- 10% NS- 10%	yes- 40% no- 60%
GRIGGS MANOR	10	yes- 30% no- 50% S- 20%	yes- 0 no- 100%	yes- 0 no- 0 NA- 100%	yes- 0 no- 0 NA- 100%	Pleas'g- 0 Ugly- 0 Neither- 0 NS- 100%	yes- 10% no- 80% NS- 10%	yes- 10% no- 40% NS- 10% NA- 40%
CLUSTER HOMES	6	yes- 0 no- 67% S- 33%	yes- 33% no- 67%	yes- 17% no- 83%	yes- 67% no- 0 NA- 33%	Pleas'g- 0 Ugly- 0 Neither- 17% NS- 83%	yes- 50% no- 33% NS- 17%	yes- 0 no- 50% NS- 33% NA- 17%
NORTHDOWN LAIRNI	5	yes- 0 no- 60% S- 40%	yes- 60% no- 40%	yes- 60% no- 0 NA- 40%	yes- 40% no- 0 NA- 60%	Pleas'g- 0 Ugly- 0 Neither- 40% NS- 60%	yes- 80% no- 20%	yes- 40% no- 60%

NS- Not Sure

NA- No Answer

S- Sometimes



## 1. MANCHESTER STREET

FILE: LU 1063-74

SITE LOCATION: Manchester St., Etobicoke,  
South of the C.N. Tracks.

### SUMMARY:

- A. Comparison of the day time and night time  $L_{eq}$  hand calculation prediction (used in 1975 & 1976) from the file with predictions using Program 9661 on Wang computer.

File (day time $L_{eq}$ )	- 68 dBA
(night time $L_{eq}$ )	- 64 dBA
Program 9661 (day time $L_{eq}$ )	- 68 dBA
(night time $L_{eq}$ )	- 65 dBA

Result: day time predictions are exactly the same, while the Program 9661 night time prediction is 1.4 dB higher.

Train information used (at receiver distance of 25 m)

day time - 93 passenger	night time - 13 passenger
- 8 freight	- 4 freight
- 3 switcher	- 1 switcher

- B. Comparison of predicted noise levels with actual 24 hour measurement.

Predicted (day time $L_{eq}$ ) - 67 dBA	measured (day time $L_{eq}$ ) - 69 dBA
(night time $L_{eq}$ ) - 64 dBA	(night time $L_{eq}$ ) - 65 dBA

Result: day time prediction (Program 9661) levels are 2 dB lower than measured, and the night time levels are 1 dB lower.

Train information used is same as above, except with receiver distance of 33 m.

- C. Comparison of measured outdoor recreation area noise levels with Ministry guidelines. The measured level is 54 dBA which is within the 55 dBA Ministry guidelines. The outdoor recreation area is protected by the houses which act as a barrier block, providing an acoustical insertion loss of 12 dB.



FIGURE 31. MANCHESTER STREET. File LU-1063-74. Measurement location 3 in the protected recreational area, the backyard. Note the solid fence between the homes.



FIGURE 32. MANCHESTER STREET. File LU-1063-74. Reference location in the front yard. Note the railroad tracks in background.

- D. Comparison of indoor sound level measurements (livingroom) with Ministry guidelines. The guidelines level is 45 dBA (07 00 - 23 00), while the measured day time (07 00 - 23 00)  $L_{eq}$  was 53 dBA. This is the result of a 14 dB transmission loss in the living room (facing the tracks), achieved through use of double-glazed windows and adequate facade attenuation.
- E. Comparison of noise levels at location 2 and 3 to determine the effectiveness of the wood fence as a noise control measure. Based on five-minute daytime  $L_{eq}$  measurements, the sound level at location 2 (behind building) was 59 dBA, while the sound level at location 3 (behind fence) was 57 dBA.

VISUAL INSPECTION REPORT -MANCHESTER ST.

MOE File No. 1063-74

Date: March 20/79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT	Yes	about 9.2m from sidewalk	units to be as close as 6.2m from sidewalk
BARRIER BLOCKS			
BARRIER WALL	Yes	3/4"x 1/2" space x 3/4" Gaps in bottom	
EARTH BERMS			
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING	Yes	Yes	All units
LOCATION OF OUTDOOR REC. AREA	Yes	Yes	Backyard
WINDOWS	Double-glazing	Double-glazing	
DOORS			
WALLS			
AVAILABILITY OF A/CONDITIONING			
OTHER			

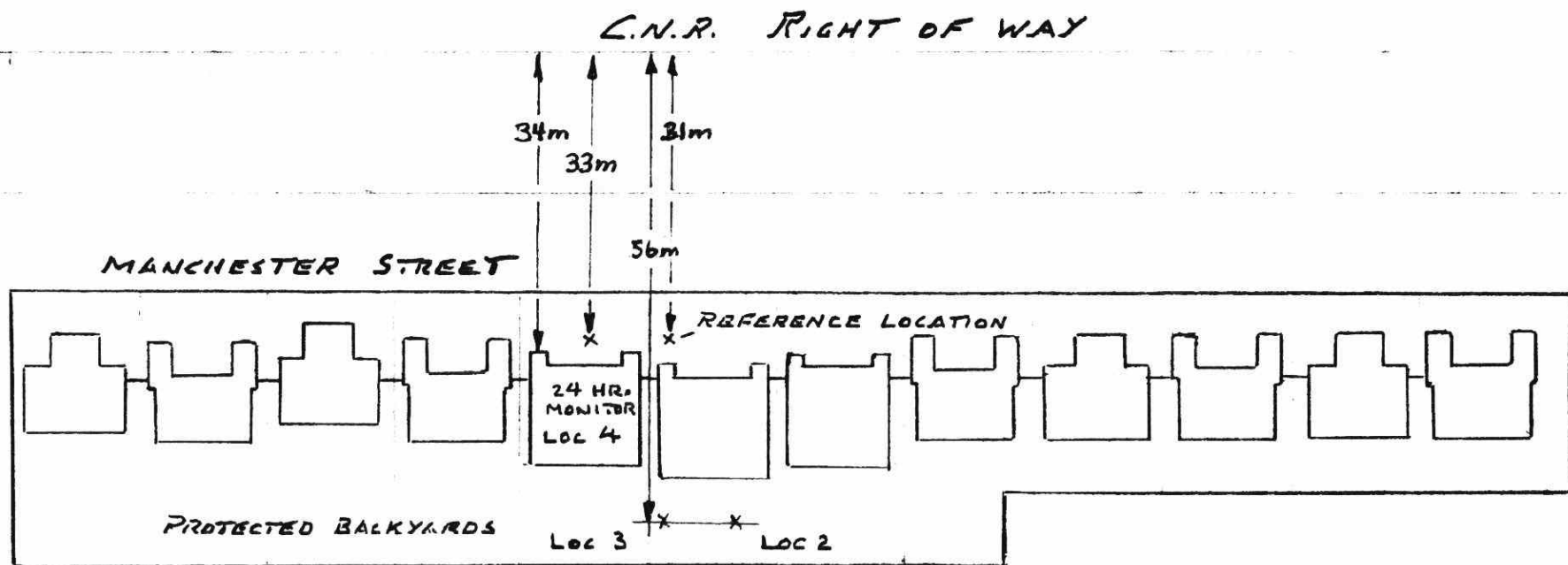


FIGURE 33.

LU-1063-74

MANCHESTER STREET

MANCHESTER ST.- March 20/79

[illegible]

## 2. GRIGGS MANOR

FILE: LU 1097-73

SITE LOCATION: Griggs Manor, East of Royal York and North of  
Cavell Ave., Etobicoke

### SUMMARY:

- A. Comparison of hand calculation prediction (used in 1975 & 1976) with that of thick barrier calculation using Program 5946 on the Wang computer, for locations 2 and 3.

Location 1 - attenuation due to building

Hand calculation	- 23 dB wheel/rail
	- 23 dB locomotive
Program 5946	- 22 dB wheel/rail
	- 20 dB locomotive

Location 2 - attenuation due to building

Hand calculation	- 22 dB wheel/rail
	- 22 dB locomotive
Program 5946	- 20 dB wheel/rail
	- 17 dB locomotive

In all cases the hand calculation results are higher than the program 5946 result, with a 1 dB to 5 dB range of difference.

- B. Comparison of predicted attenuation (program 5946) due to the building barrier and the measured levels at location 1.

Attenuation due to building - 22 dB wheel/rail  
- 20 dB locomotive

The measured insertion loss (building attenuation) is 12.5 dB. Therefore, the predicted building attenuation is at least 7.5 dB higher. The actual insertion loss would be much greater than 12.5 dB because of higher overall noise levels recorded at the site which were due to traffic noise from Royal York Rd. and local background noise and not primarily from the trains.

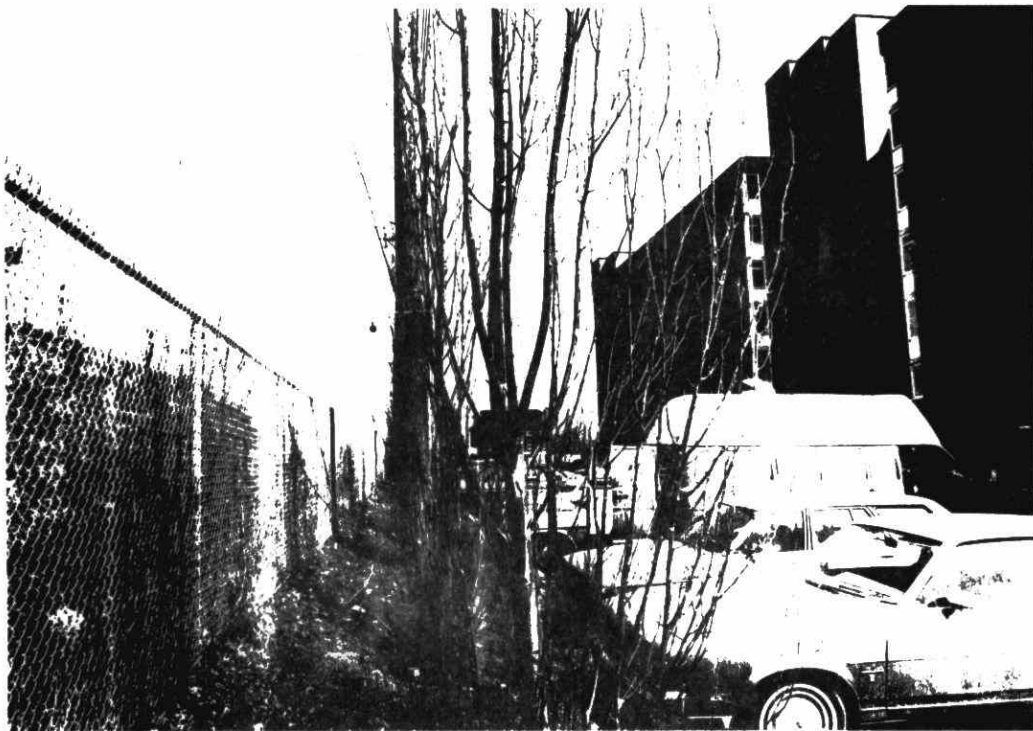


FIGURE 34. GRIGGS MANOR. File LU-1097-75. The 24 hour monitoring location. Note the railroad tracks above grade and the blank wall construction.

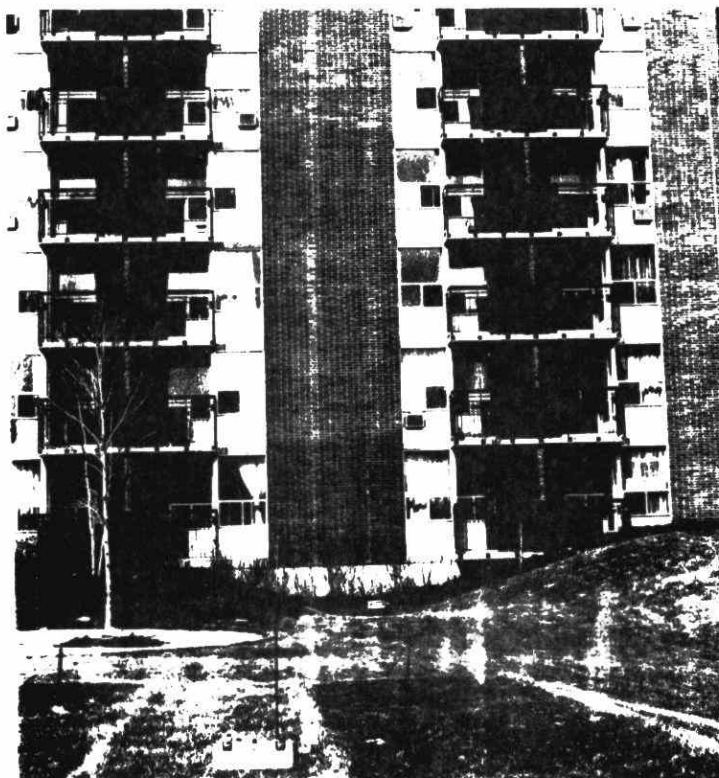


FIGURE 35. GRIGGS MANOR. File LU-1097-75. Measurement locations (80' and 10') respectively in the protected recreational area. Measurements were also performed indoors in the upper left apartment.



- C. Comparison of predicted attenuation (program 5946) due to the building barrier and measured levels at location 2.  
Location 2 - attenuation due to building  
Program 5946 - 20.5 dB wheel/rail  
- 17.5 dB locomotive  
The measured insertion loss is 12 dB, being at least 6 dB lower than the program 5946 results. The reason is the same as in B.
- D. Comparison between outdoor guideline levels and measured levels at location 1 and 2.  
Guidelines level - 55 dBA (07 00 - 23 00 hrs)  
Location 1 - measured level 50 dBA (07 00 - 23 00 hrs) given the insertion loss of 12.5. This is therefore within the guidelines.  
Location 2 - measured level 40 dBA (07 00 - 23 00 hrs) given the insertion loss of 12. This is within the guidelines.
- E. Comparison of indoor guideline levels with measured levels  
Guidelines level (bedroom) is 40 dBA (23 00 - 07 00)  
An indoor measurement was done in one of the apartment units, typically furnished, giving an  $L_{eq}$  of 34 dBA for the night time (23 00 - 07 00) period.
- F. Measurements recorded from 2:15 to 2:40 were only due to traffic, as absolutely no trains were audible to the observer, while in reality 4 trains had passed by.

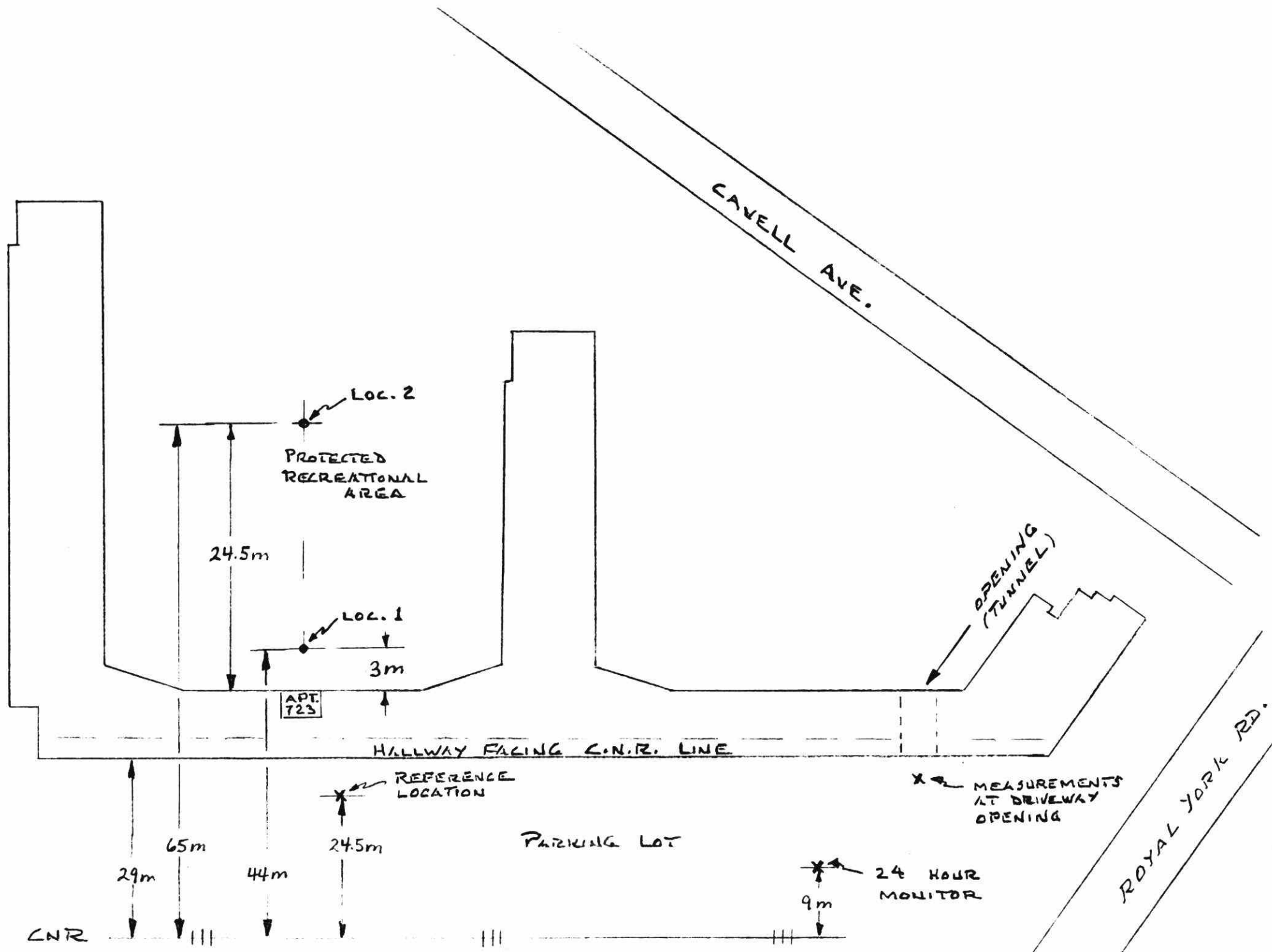
VISUAL INSPECTION REPORT- GRIGGS MANOR

MOE File No. 1097-75

Date: MARCH 9/79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT	Yes	Yes	U-shaped, facing south
BARRIER BLOCKS	Yes (blank wall)	Yes	*North wall, few windows corridors adjacent to wall
BARRIER WALL			
EARTH BERMS			
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING	Yes	Yes	Eastern end
LOCATION OF OUTDOOR REC. AREA			
WINDOWS	Double-glazed sealed	Double-glazed sealed, $\frac{1}{2}$ " air space	
DOORS	Yes	Yes	solid core wood
WALLS	North wall	Walls 13" wide	4" brick, 1" airspace 2" insulation 6" concrete
AVAILABILITY OF A/CONDITIONING	Yes	Yes	Sleeves in all units
OTHER	No basement Warning clause	Yes -Unable to determine	Southwestern end

FIGURE 36.



## GRIGGS MANOR- March 16/79

TIME	REFERENCE (dBA Leq )	LOCATION 1 dBA Leq	LOCATION 2 dBA Leq	LOCATION 3 Apt.#723	COMMENTS ( Trains)
1:40- 1:45	66	56	57		1 small shunting train
1:45- 1:50	67	50	51		1 small shunting train
1:50- 1:55	68	51	52		"
1:55- 2:00	68	51	52		"
2:00- 2:05	61	51	50		"
2:05- 2:10	71	51	50		1 GO Train (stop & start)
2:10- 2:15	69	52	52		2 GO Trains (stop & start)
2:15- 2:20	59		58	43	No trains
2:20- 2:25	71		55	43	1 Passenger train med. speed
2:25- 2:30	70		52	45	1 Freight med. speed
2:30- 2:35	63		52	43	1 slow, short train
2:35- 2:40	67		52	43	1 slow, long train
2:40- 2:45	67		52		1 GO train stop & start
2:45- 2:50	61		57		No trains

## GRIGGS MANOR- March 19/79

TIME	REFERENCE dBA Leq	DRIVEWAY OPENING dBA Leq	LOCATION 1 dBA Leq	LOCATION 2 dBA Leq		COMMENTS (Trains)
10:00- 10:30 am.	72	68				2 pass-bys
10:30- 10:50	62	60				1 pass-by (very slow)
10:50- 11:00	71	66				2 GO trains (stop & start)
11:10- 11:15	59		53	54		No trains
11:15- 11:20	58		57	57		No trains (aircraft)
11:20- 11:25	58		53	54		No trains
11:25- 11:30	60		54	54		1 train(slow)
11:30- 11:35	62		54	54		No trains
11:35- 11:40	62		53	54		1 train(slow)
11:40- 11:45	64		54	55		No trains
11:45- 11:50	64		52	54		1 train(slow)
11:50- 11:55	64		53	54		No trains
11:55- 12:00	64		53	54		2 GO trains
1:15- 1:20	63		54	56		No trains
1:20- 1:25	61		54	55		No trains
1:25- 1:30	61		52	53		1 train(slow)
1:30- 1:35	63		53	54		1 Engine(slow)
1:35- 1:40	65		53	55		No trains
1:40- 1:45	61		53	55		1 train(slow)
1:45- 1:50			54	56		vehicle parked temporarily beside reference
1:50- 1:55	88		54	55		garbage truck at reference
1:55-			Too windy	Too windy		

### 3. HOLIDAY DRIVE

FILE: LU 1061-74

SITE LOCATION: Holiday Dr. and Hwy. 427, Etobicoke

#### SUMMARY:

- A. Comparison of road traffic  $L_{eq}$  levels between October, 1975 and March, 1979.

March 1979      day time  $L_{eq}$  - 80 dBA  
(at 28 m)      night time  $L_{eq}$  - 76 dBA

October 1975    day time  $L_{eq}$  - 76 dBA  
(at 28 m)      night time  $L_{eq}$  - 71 dBA

There were noticeable increases of 4-5 dB since 1975.

- B. Barrier effectiveness - comparison of hand calculation method to program 4104, thin barrier calculation, on the Wang computer.

Hand calculation (from file) - 19 dB attenuation  
Program 4104 - 17 dB barrier attenuation

- C. Comparison of Program 4104 with that of measured insertion loss (barrier attenuation)

Program 4104 - 18 dB insertion loss  
measured - 12 dB insertion loss

- D. Comparison of the outdoor recreation area sound level guidelines with measured levels.

Guideline - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured level - 65 dBA,  $L_{eq}$  (07 00 - 23 00 hrs)  
given a 12 dB insertion loss

This is 10 dB in excess of the guidelines.

- E. Barrier effectiveness at Location 2 B.

location 2A (68 dBA  $L_{eq}$ ) - location 2B (62 dBA  $L_{eq}$ )  
subtract an additional 1 dB from 2A due to increased  
distance attenuation (67 dBA - 62 dBA)  
The insertion loss is 5 dB.



FIGURE 37. HOLIDAY DRIVE. File LU-1061-74. The 24 hour monitoring location facing Hwy 427. Note the microphone extension on top of the van roof.

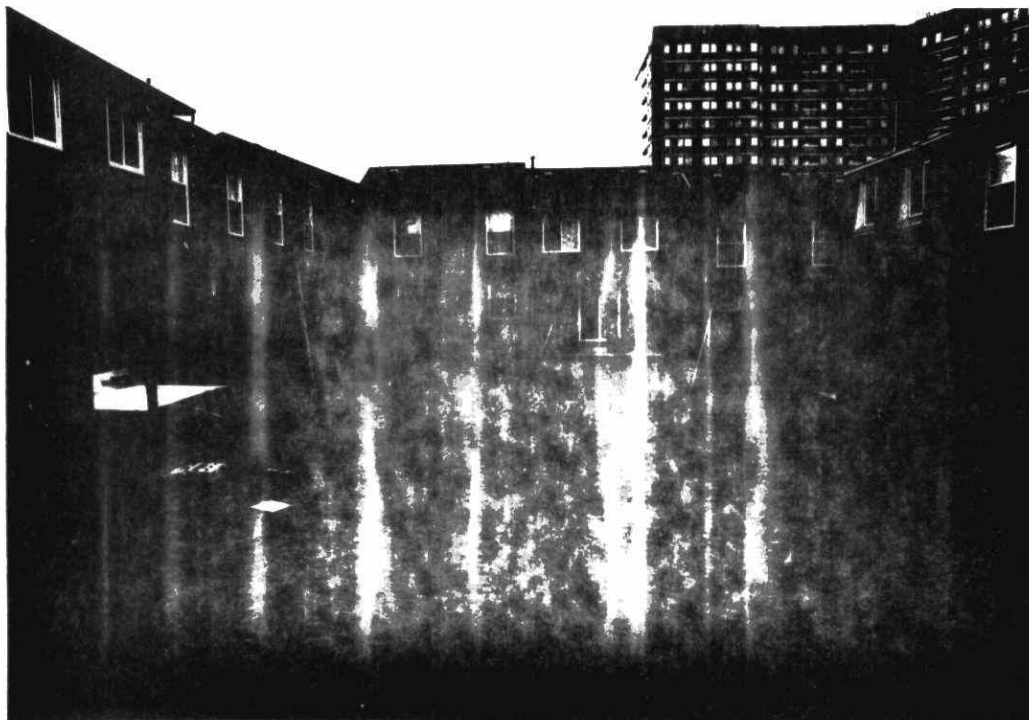


FIGURE 38. HOLIDAY DRIVE. File LU-1061-74. Measurement location B. Measurements were recorded in the recreational area of the first row of buildings.

- F. Comparison of the outdoor recreation area guidelines with measured levels at location 2 B.

Guideline - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

Measured level - 67 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
given a 5 dB insertion loss.

There is an 12 dB excess above the guidelines.

- G. Comparison of location 3A with 3B, and 4A with 4B, in order to check the effect of noise reflection from Hwy. 427 by the apartment building to the immediate south.

Measured levels - 3A and 4A (north side) 62 dBA  $L_{eq}$   
- 3B and 4B (south side) 61 dBA  $L_{eq}$

There is apparently no additional noise being reflected by the building.

- H. Indoor Noise Levels -

- (i) Comparison of predicted and measured transmission loss.

predicted loss for window - 34 dB

measured loss for window - 33 dB

predicted loss for door - 28 dB

measured loss for door - 28 dB

- (ii) Comparison of guideline levels in the bedroom and living room with measured levels.

bedroom (guidelines) - 40 dBA  $L_{eq}$  (23 00 - 07 00 hrs)

(measured) - 40 dBA  $L_{eq}$  " " "

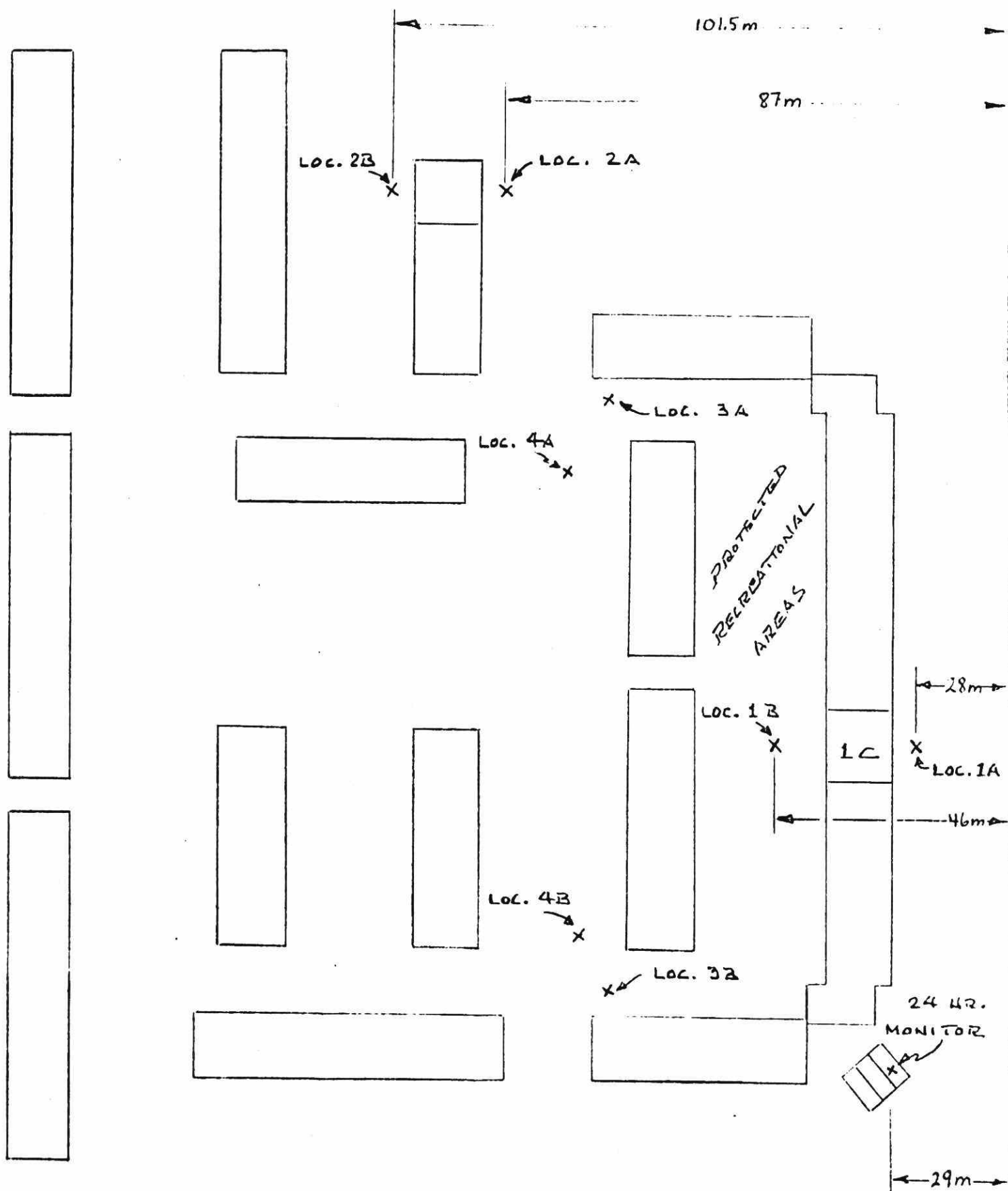
living room (guideline) - 45 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

(measured) - 43 dBA  $L_{eq}$  " " "



FIGURE 39. HOLIDAY DRIVE. File LU-1061-74. Measurement location 3B. This location was chosen to check whether there are reflections from Hwy 427 and the adjacent high-rise apartment building.





Apartment Building

FIGURE 40.

LU 1061-74  
HOLIDAY DRIVE  
& 427

# VISUAL INSPECTION REPORT - HOLIDAY DR.

MOE File No. LU 1061-74

Date: MARCH 16/79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT	Grading	Grading	
BARRIER BLOCKS	Yes	Yes	
BARRIER WALL			
EARTH BERMS			
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING	Yes	Yes	
LOCATION OF OUTDOOR REC. AREA	Yes	Yes	Backyard
WINDOWS	Double-glazing 4mm x 3" x 4mm -absorbent lining	same	
DOORS	Type D1 1 3/4" thick	same	with separate steel panels, triple seal self-adjusting bottom
WALLS			
AVAILABILITY OF A/CONDITIONING			
OTHER			

# HOLIDAY DRIVE

TIME	REFERENCE LOCATION	dBA (L <sub>EQ</sub> )	MEASUREMENT LOCATION	dBA (L <sub>EQ</sub> )	COMMENTS
Mar.15/79 11:27-11:47 A.M.	Location 1A Facing Hwy.427	76	Backyard (1B) of location 1A	61	
12:00-12:20	Location 2A facing Hwy.427	68	Location 2B backyard of location 2A	62	Traffic from Holiday Dr. and 427
12:35-12:55	Location 3A North side	62	Location 3B South side	61	
Mar.16/79 10:15-10:20	Location 1A facing Hwy.427	76	Location 1C indoors (living- room)	39	Livingroom is facing backyard
10:23-10:28	Location 1A facing Hwy.427	76	Location 1C indoors (bedroom)	40	2nd Floor bedroom facing hwy. 427
10:30-10:35	Location 1A facing Hwy.427	76	Location 1C indoors (kitchen)	42	Microphone 30.5cm from window (Transmission loss)
10:40-10:45	Location 1A facing Hwy.427	77	Location 1C indoors (entr- ance)	48	Microphone 61cm from door (Transmission loss)
11:10-11:30	Location 1A facing Hwy.427	76	Location 1B backyard of location 1A	61	Recheck previous days measurement
11:40-11:45	Location 4A North side	62	Location 4B South side	61	Check reflection from apartment on south side.

NOTE: For window and door transmission loss measurements the levels indoors included noise from a refrigerator and furnace respectively.

#### 4. MACTEE SUBDIVISION

FILE: LU 1463-77

SITE LOCATION: MacTee Subdivision, north of John St. and  
west of Leslie St., Markham.

##### SUMMARY:

- A. Comparison of predicted noise levels from file with measured levels, with trains as the major noise source.

predicted - day time	-	70 dBA $L_{eq}$
night time	-	70 dBA $L_{eq}$
measured (at reference pt)		
- day time	-	82 dBA $L_{eq}$
- night time	-	71 dBA $L_{eq}$

The higher measured day time level could be due to local construction noise in the area.

Train information used

day time	-	16 freight, 80 kmh, 80 cars/train
night time-		8 freight, 80 kmh, 80 cars/train
	-	3 locos/train

- B. Comparison of predicted barrier performance with measured barrier performance at location 2.

predicted insertion loss due to barrier	-	7.0 dB
measured insertion loss	-	5.4 dB

- C. Comparison of indoor sound level guidelines for the bedrooms with measured levels.

Guideline (bedroom)	-	40 dBA $L_{eq}$ (23 00 - 07 00)
measured	-	38 dBA $L_{eq}$ (23 00 - 07 00)

Therefore the night time indoor noise levels were within the guidelines.

- D. Outdoor recreation area comparisons were not done because of local construction in the neighbourhood.



FIGURE 41. MACTEE SUBDIVISION. File LU-1463-77. Measurement location 2 in the protected recreation area. Note the berm and the first row of homes. Measurement location 3 is inside the second floor bedroom.

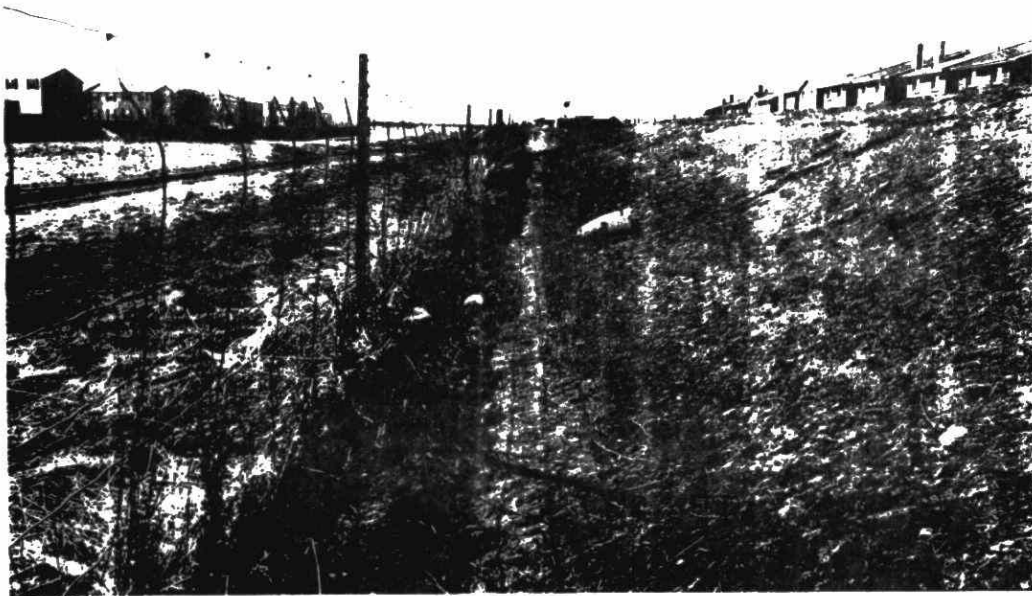


FIGURE 42. MACTEE SUBDIVISION. File LU-1463-77. Reference position. Note the railroad tracks, berm and homes.

VISUAL INSPECTION REPORT- MacTEE SUBDIVISION

MOE File No. LU 1463-77

Date: MARCH 7/79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT	Yes	Yes	Setback- 23m, for Blocks G & H
BARRIER BLOCKS			
BARRIER WALL			
EARTH BERMS	Yes	Yes	Lots 76 thru 108, including Blcks. F,G &H
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING	Yes	Yes	1st row adjacent to C.N.R. tracks
LOCATION OF OUTDOOR REC. AREA	Yes	Unable to determine	Front yard, 1st row facing tracks
WINDOWS	Double-glazing $\frac{1}{4}$ " x 2" x $\frac{1}{4}$ "	Double-glazed Block G- $\frac{1}{4}$ " x $\frac{1}{2}$ " x $\frac{1}{4}$ " Unit 108- $\frac{1}{4}$ " x 1" x $\frac{1}{4}$ "	Facing C.N.R. tracks Fixed, including blk. N, all others openable
DOORS	Double-glazed $\frac{1}{4}$ " x 2" x $\frac{1}{4}$ "	Sliding door, D/G $\frac{1}{4}$ " x 2" x $\frac{1}{4}$ "	
WALLS	Yes	Yes	frame construction with brick veneer
AVAILABILITY OF A/CONDITIONING	Yes	Yes	Blcks. I,J,K,L
OTHER			





McTEE SUBDIVISION- March/79

[illegible]

5. NORTHDOWN LANNI

FILE: LU 1109-75

SITE LOCATION: Northdown Lanni, between Clarke Ave. and the  
CNR tracks in Thornhill (Markham).

SUMMARY:

- A. Comparison of levels recorded in September, 1975 with  
levels in March, 1979.

Sept. 1975 day time - 65 dBA (at 20 m)  
                    night time - 64 dBA  
March, 1974 day time - 66 dBA (at 20 m)  
                    night time - 70 dBA

- B. Comparison of hand calculation from file for barrier atten-  
uation with Program 4104, thin barrier calculation, using  
the Wang computer.

hand calculation - 9 dB (locomotive)  
insertion loss - 11 dB (wheel/rail)  
program 4104 - 13 dB (locomotive)  
                    - 16 dB (wheel/rail)

- C. Comparison of attenuation of location 3, between actual  
measured insertion loss and predicted insertion loss using  
Program 4104, thin barrier calculation.

Program 4104 - 10 dB (locomotive)  
                    - 14 dB (wheel/rail)  
measured - 17 dB

- D. Comparison of the outdoor recreation area guidelines with  
the measured levels at location 3.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 46 dBA  $L_{eq}$  given an insertion loss  
                    of 17 dB.

- E. Comparison of the outdoor recreation area guidelines with  
the measured level at location 4.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 62 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
Excess over guidelines is 7 dB

A 1.9 m brick wall had been recommended but only a wood  
fence had, in fact, been installed.

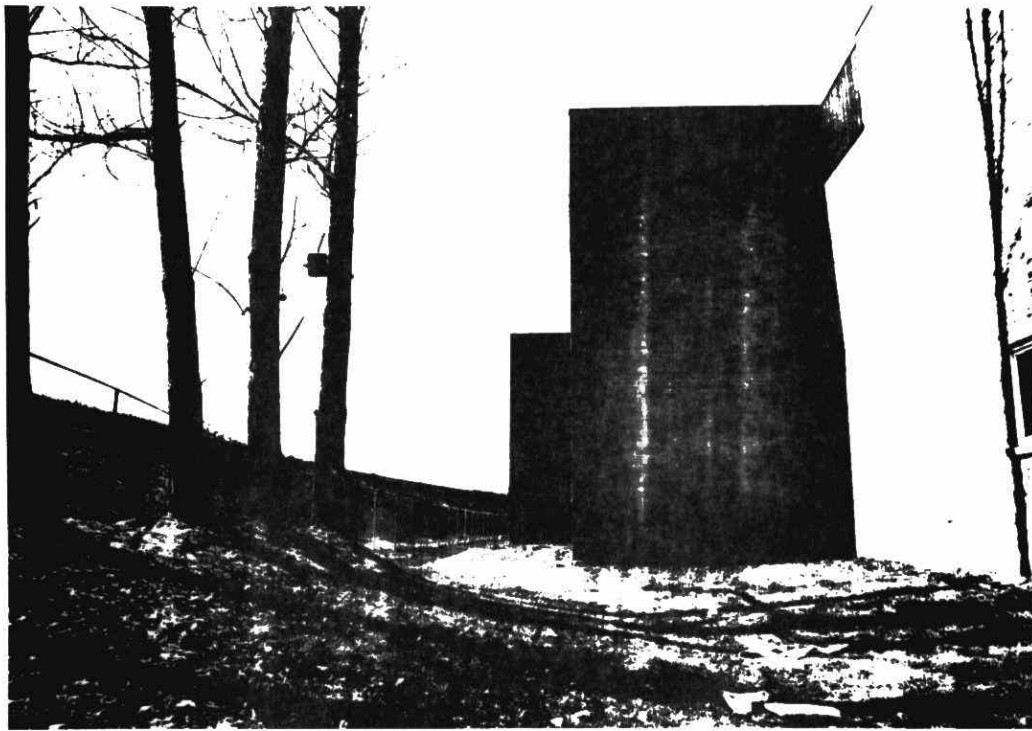


FIGURE 44. NORTHDOWN LANNI. File LU-1109-75. The 24 hour monitoring location and reference location 2. Note railroad tracks above grade and blank walls.



FIGURE 45. NORTHDOWN LANNI. File LU-1109-75. Measurement location 3 in protected recreation area. Measurement location 2 for second floor bedroom and first floor living room also shown.

- F. Comparison of the outdoor recreation area guidelines with the measured level at location 5.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 52 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

- G. Comparison of the indoor noise level guidelines with measured levels in the living room.

Guidelines - 45 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 41 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

- H. Comparison of the indoor noise level guidelines with measured levels in the bedroom.

Guidelines - 40 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 50 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
Excess over guidelines is 10 dB

NOTE: Indoor measurements were performed with windows open.

FIGURE 46. NORTHDOWN LANNI. File LU-1109-75. Measurement location 5 behind the second row of homes. Note the railroad tracks in background in the gap between the homes.



## VISUAL INSPECTION REPORT - NORTHDOWN LANNI

MQE File No. LII 1109-75Date: MARCH /79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT			
BARRIER BLOCKS	Yes	Yes	8.9m wall(side of homes) from lots 11-34
BARRIER WALL	Yes	Wood & block, not brick	East of lots 8,10,&11 is a 1.9m high wall
EARTH BERMS			
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING			
LOCATION OF OUTDOOR REC. AREA	Yes	Yes	Front Yard
WINDOWS	Double-glazing	Double-glazing	
DOORS			
WALLS			
AVAILABILITY OF A/CONDITIONING			
OTHER			

CLARKE AVE.

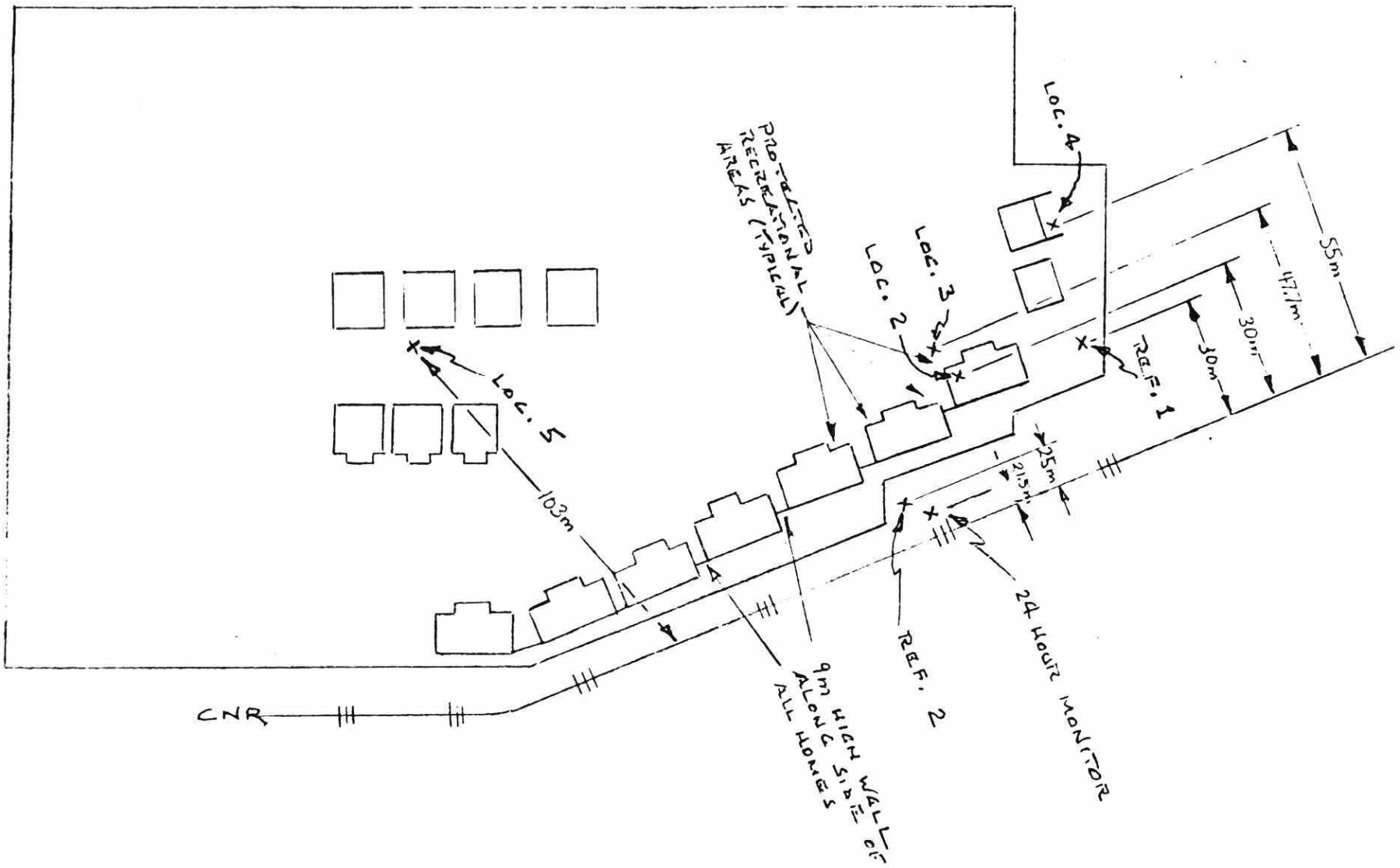


FIGURE 47.

NORTHDOWN LANNI  
LU-1109-75

NORTHDOWN LANNI- March/79

[illegible]



6. WINSTON CHURCHILL BLVD.

FILE: LU 1253-76

SITE LOCATION: Cluster homes on Winston Churchill Blvd. and  
Tours Rd., Mississauga.

SUMMARY:

- A. Comparison of the predicted  $L_{eq}$  from the file with the measured  $L_{eq}$ .

file - 68 dBA  $L_{eq}$

measured - 54 dBA  $L_{eq}$

This difference is due to the prediction being calculated on the traffic volumes of a future major arterial.

- B. Comparison of Program 4104, thin barrier calculation with that of measured insertion loss at location 2 (due to the barrier).

Program 4104 - 0 dB

measured - .34 dB

- C. Comparison of levels at location 3 with that of outdoor recreation area guidelines.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

measured - 58 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

- D. Comparison of sound levels at location 4 with outdoor recreation area guidelines.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

measured - 53 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

- E. Comparison of the indoor sound levels with indoor level guidelines.

Guidelines (bedroom) - 40 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

measured - 30.5 dBA  $L_{eq}$  (23 00 - 07 00 hrs)

The indoor levels were taken with the windows closed, for they could not be opened. All measurements were taken with an existing 2 lane road. In the future it will be expanded to 6 lanes, which will give a significant increase traffic volume and subsequent sound levels.

NOTE: Windows sealed.

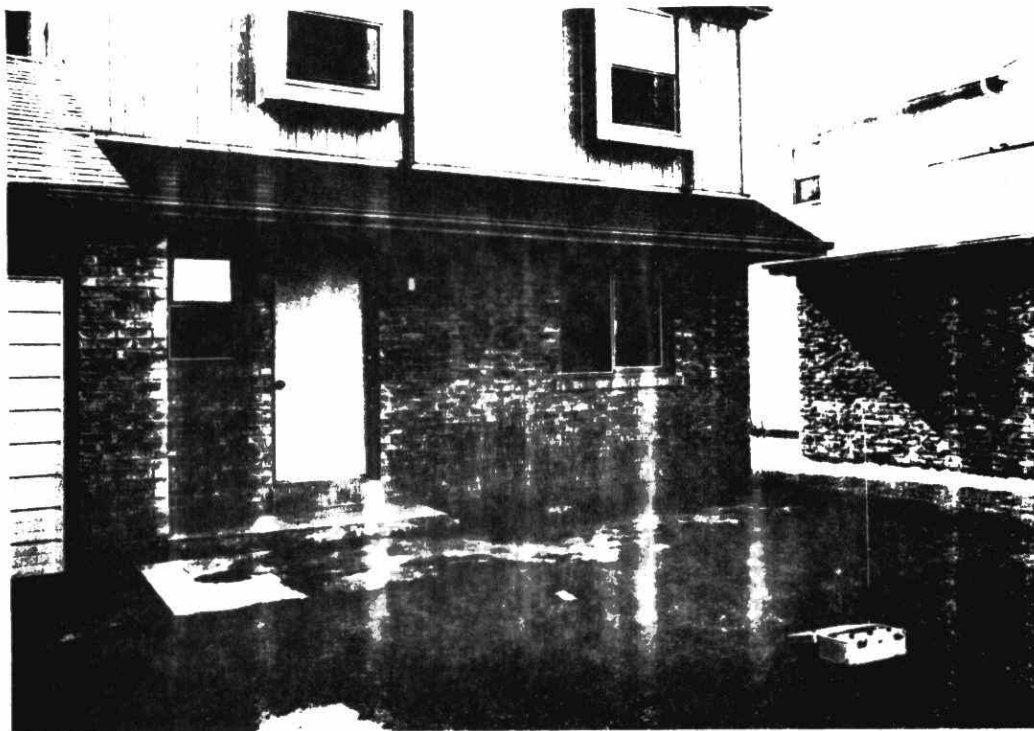


FIGURE 48. WINSTON CHURCHILL CLUSTER HOMES. File LU-1253-76.  
Measurement location 4 in the protected area.



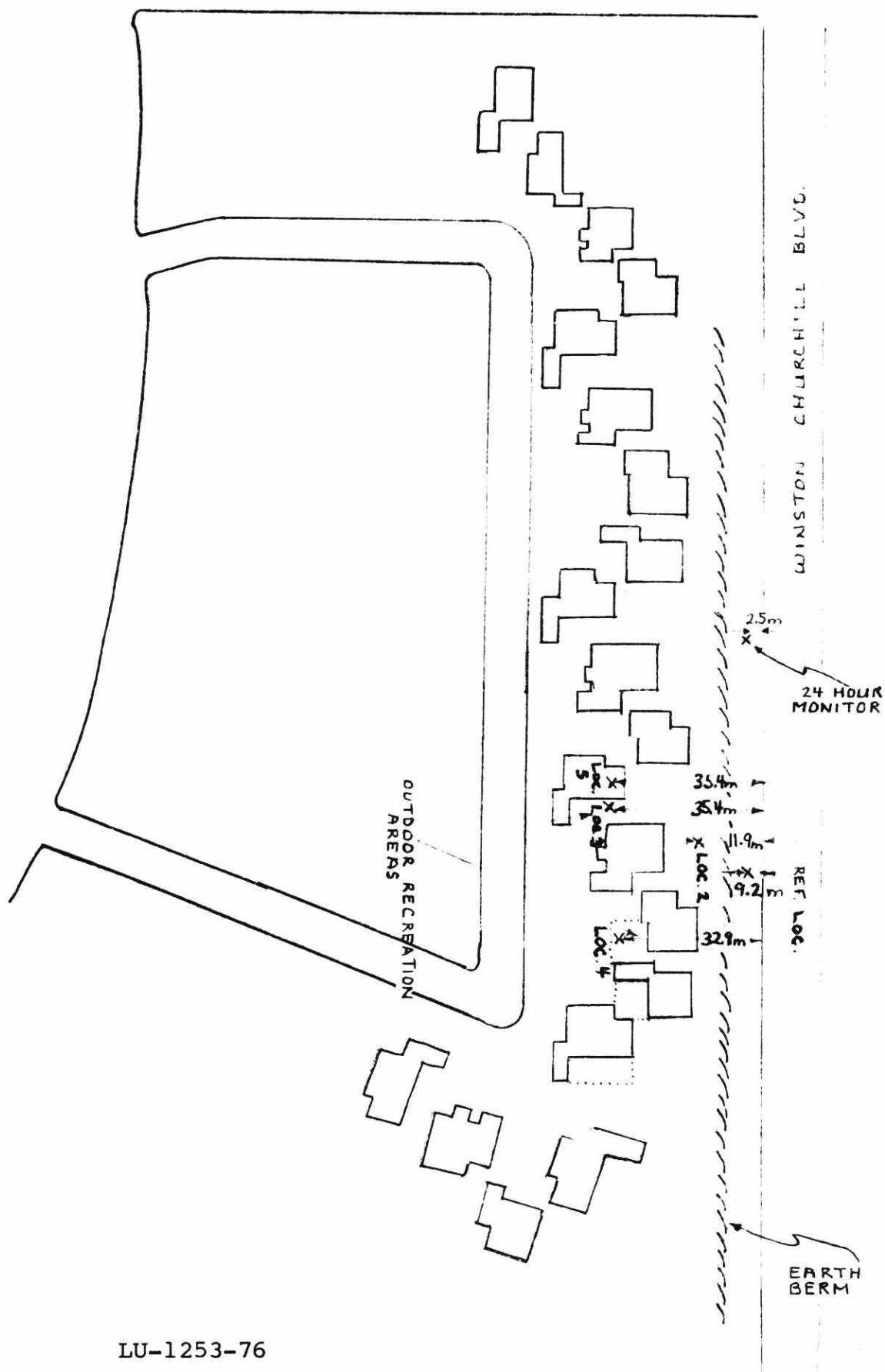
FIGURE 49. WINSTON CHURCHILL CLUSTER HOMES. File LU-1253-76.  
The 24 hour measurement location. Note the berm.

VISUAL INSPECTION REPORT- CLUSTER HOMES

MOE File No. LU 1253-76

Date: MARCH 20/79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT			
BARRIER BLOCKS			
BARRIER WALL	Yes	All walls 1.7m, not finished	1.9m high- units 5,6,7, 10,14,17,18,21,22, 23,
EARTH BERMS	Yes	Yes	1.9m berm
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING			
LOCATION OF OUTDOOR REC. AREA			
WINDOWS			
DOORS			
WALLS			
AVAILABILITY OF A/CONDITIONING			
OTHER	Warning clause		



LU-1253-76  
WINSTON CHURCHILL BOULEVARD  
CLUSTER HOMES

FIGURE 50.

WINSTON CHURCHILL BLVD.  
CLUSTER HOMES- March 20/79

[illegible]

## 7. SHERWOOD MEADOWS

FILE: LU 1636-77

SITE LOCATION: Sherwood Meadows, north of Burnhamthorpe Rd., east  
of Robert Speck Pkwy. Mississauga.

### SUMMARY:

- A. Comparison of predicted levels from the file with measured levels.

predicted - 64 dBA (at 31 m)

measured - 63.5 dBA

Traffic information used - vehicle/day - 35,000

speed - 65 Km/h

trucks - 3,500

- B. Comparison of predicted barrier insertion loss with measured insertion loss at location B1.

At B1, a 1.8 m barrier wall plus a 1.2 m depression of the roadway gives a predicted insertion loss of 5 dB. The measured insertion loss was 2 dB, which is lower than the predicted loss due 4" gaps along the bottom of the fence and local construction noise.

- C. Comparison of the insertion loss provided by the fence between location A2 and B2.

$L_{eq}$  at A2 (61 m) - 59 dBA

$L_{eq}$  at B2 (61 m) - 59 dBA

Therefore no insertion loss is provided by the fence between the two locations.

- D. Comparison of the insertion loss provided by the fence between location A3 and B3.

measured A3 - 57 dBA

measured B3 - 55 dBA

The insertion loss of the fence at B3 is 1 dB.

- E. Comparison of sound level guidelines for outdoor recreation areas with measured levels at location B1.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)

measured - 63 dBA daytime  $L_{eq}$



FIGURE 51. SHERWOOD MEADOWS. File LU-1636-77. Measurement location B1. Note gaps along the fence. This is the recreational area.



FIGURE 52. SHERWOOD MEADOWS. File LU-1636-77. Measurement location B2. Note the gaps along the bottom of the fence. Burnhamthorpe road is seen in the background.

- F. Comparison of sound level guidelines for outdoor recreation areas with measured levels at location B2.

Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 61 dBA (day time  $L_{eq}$ ) given a 0 dB  
barrier insertion loss

- G. Comparison of sound level guidelines for outdoor recreation areas with measured levels at location B3.

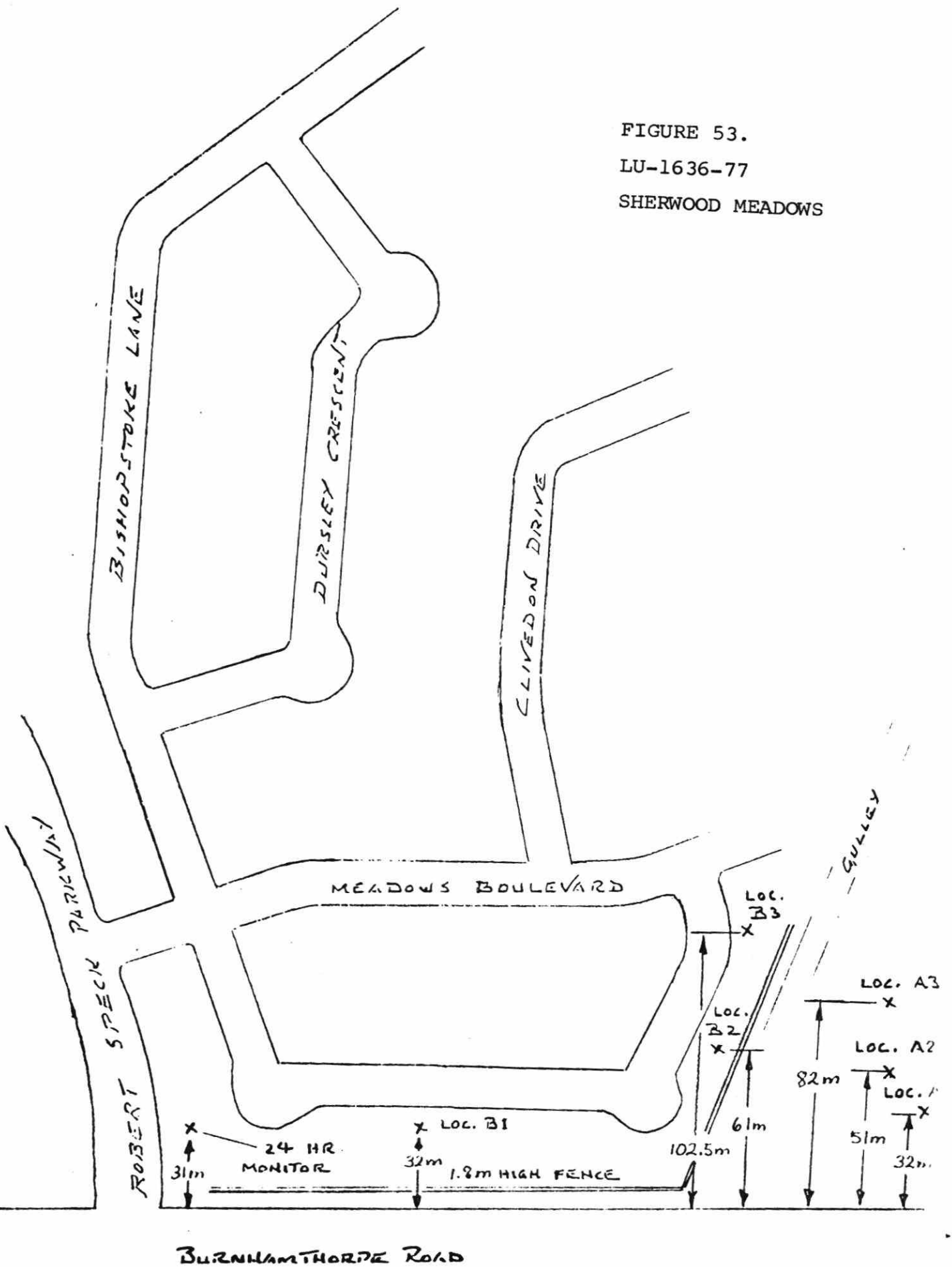
Guidelines - 55 dBA  $L_{eq}$  (07 00 - 23 00 hrs)  
measured - 56 dBA (day time  $L_{eq}$ )

Local construction noise would account for much of the excess for locations E, F and G.

A noise survey was not conducted as the homes were still under construction and therefore unoccupied.



FIGURE 53.  
 LU-1636-77  
 SHERWOOD MEADOWS



## VISUAL INSPECTION REPORT- SHERWOOD MEADOWS

MOE File No. 1636-77Date: MARCH 23/79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT			
BARRIER BLOCKS			
BARRIER WALL	1.9m a long Burnhamthorpe from Lot 1-Dursley Cr. along Rathburn, both sides	Gaps in bottom Not finished on Rathburn and Robertson	
EARTH BERMS			
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING			
LOCATION OF OUTDOOR REC. AREA			
WINDOWS	Double-glazing All units under availability of A/C	Not completed yet	
DOORS			
WALLS			
AVAILABILITY OF A/CONDITIONING	<sup>139-142</sup> <sup>201-207</sup> Yes-Lots 1,239, 159-180,189,238,190	Not completed	
OTHER	Warning clause (all units except B) Lots A,B,Y,Z,BB, on Rathburn, AA,CC	Not completed yet	

SHERWOOD MEADOWS- March 23/79

TIME	LOCATION	dBA Leq	LOCATION	dBA Leq	COMMENTS	
12:04-12:24 pm.	A1- 32m from Burnhamthorpe	62	B1- 32m from Burnhamthorpe (behind fence)	60	Gaps in bottom of fence, and local constr. noise in background	
12:27-12:37	A2- 51m from Burnhamthorpe	60	B2- 61m from Burnhamthorpe	59	10 minute Leq used due to increase in constr. noise	
12:45-1:05	A3- 82m from Burnhamthorpe	58	B3- 102m from Burnhamthorpe	55		

NOTE- Homes are still under construction

- the wood fence has large gaps along the bottom. The fence,  
which is to be placed along Robert Speck Pkwy., has not been built.
- Rathburn Rd. fence has not been built yet either.

8. ASTRA PARK

FILE: LU 1222-76

SITE LOCATION: Astra Park, north of the Q.E.W. west of Cawthra Rd., off of Asta Dr., Mississauga.

SUMMARY:

- A. Comparison of predicted (Program 4104) insertion loss with measured insertion loss at location 3.

predicted - 12 dB

measured - 5 dB

- B. The insertion loss provided by the 1.2 m masonry wall at location 5.

measured (location 4) - 64 dBA  $L_{eq}$

measured (location 5) - 54 dBA  $L_{eq}$

The insertion loss is 10 dB.

- C. The insertion loss provided by the 1.2 m masonry wall at location 8.

measured (location 7) - 67 dBA  $L_{eq}$

measured (location 8) - 59 dBA  $L_{eq}$

The insertion loss at location 8 is 8 dB.

- D. The transmission loss in the master bedroom with windows closed at location 6.

measured (outside window) - 72 dBA  $L_{eq}$

measured (inside bedroom) - 44 dBA  $L_{eq}$

The transmission loss is 28 dB.

- E. The transmission loss in the master bedroom with open windows at location 6.

outdoor measured - 72 dBA  $L_{eq}$

indoor (bedroom) measured - 64 dBA  $L_{eq}$

The transmission loss is 8 dB.



FIGURE 54. ASTRA PARK. File LU-1222-76. The 24 hour measurement location. Note the highway(Q.E.W.) and the distance to the first row of homes.



FIGURE 55. ASTRA PARK. File LU-1222-76. Measurement location 3 in the protected recreational area behind the first row of homes nearest the highway.

F. The transmission loss provided by the door at location 6.

outdoor measured - 72 dBA  $L_{eq}$

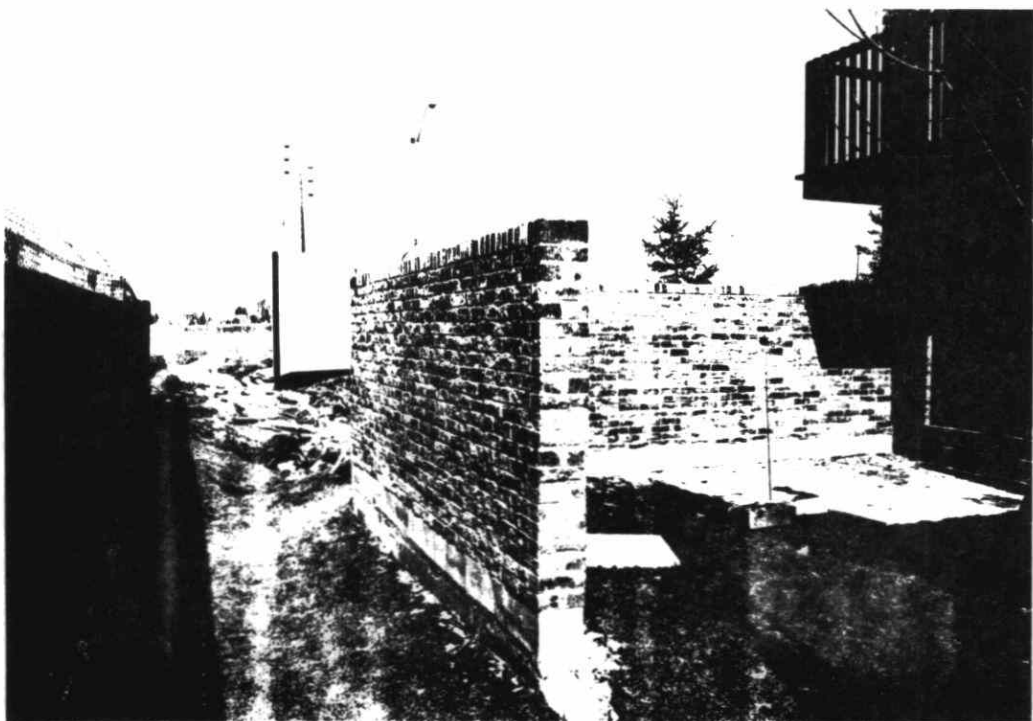
indoor (behind door) measured - 45 dBA  $L_{eq}$

The transmission loss is 27 dB.

COMMENT: The difference between the predicted insertion loss and the measured insertion loss suggests that the prediction model requires further refinement.

A further concern at this particular site is the presence of continuous transformer hum.

FIGURE 56. ASTRA PARK. File LU-1222-76. Measurement location 3 facing Cawthra road. Note the masonry wall protecting the recreational area.



VISUAL INSPECTION REPORT - ASTRA PARK

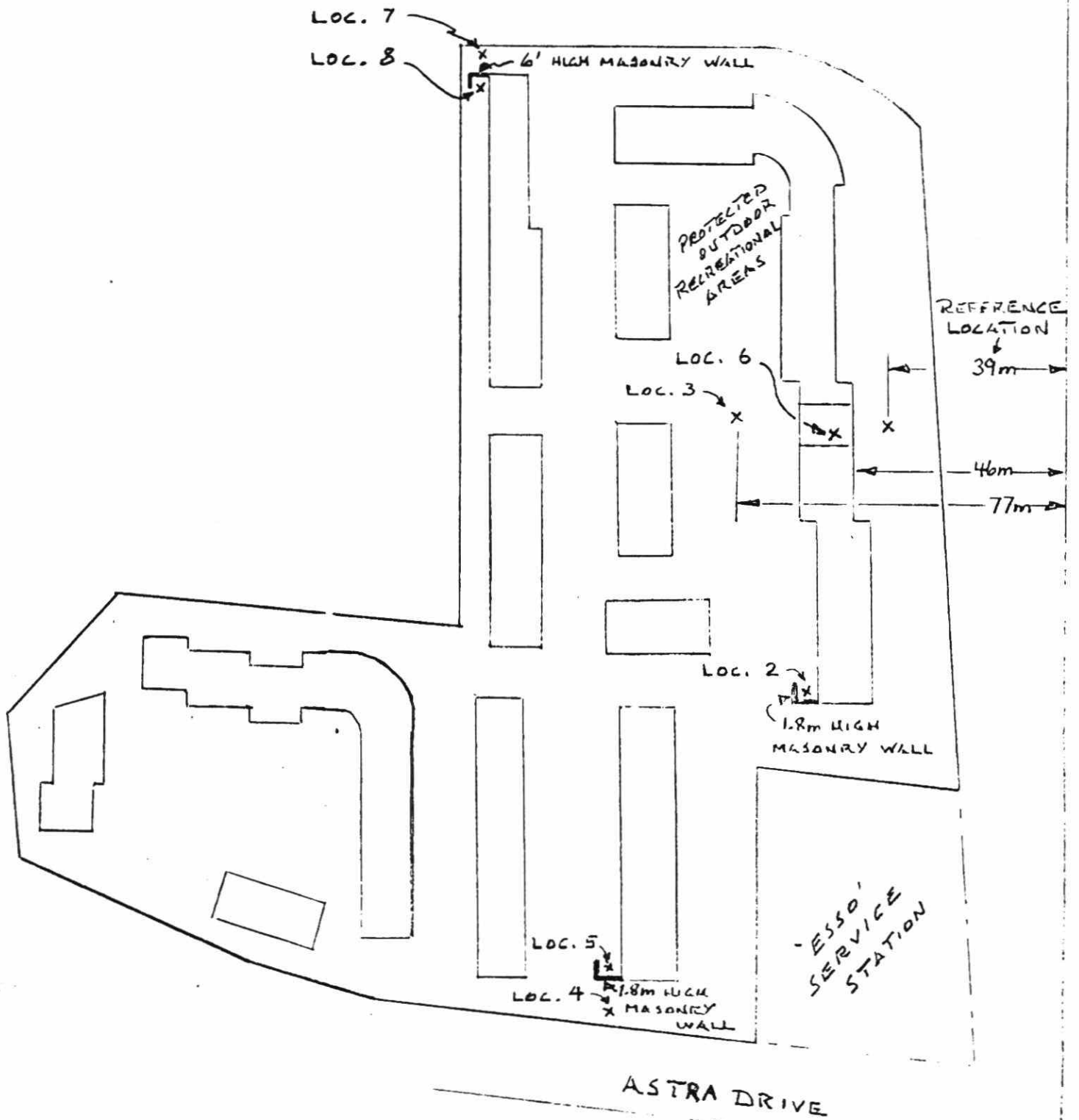
MOE File No. 1222-76

Date: MARCH /79

Noise Control Measure	RECOMMENDED	ACTUAL	COMMENTS (Lgth., Hght., Constr.)
SITE PLAN LAYOUT			
BARRIER BLOCKS			
BARRIER WALL			
EARTH BERMS			
SPECIAL NOISE CONTROL TOPOGRAPHY			
AIR CONDITIONING	Yes- Blocks A,B,C, D,E,I,J,M		
LOCATION OF OUTDOOR REC. AREA			
WINDOWS	Double-glazed 4mm x 3.6" x 4mm Sealed	$\frac{1}{4}$ " x 2" x $\frac{1}{4}$ " -openable	Blocks A,B,C,D,E,I, J,M,
DOORS	Solid core, 2" thick Airtight seal	2" thick, not solid leak on bottom	Blocks A,B,C,D,E,I,J,M
WALLS	1.9m high barrier walls	1.9m high solid masonry wall	Units A1,A14, A46,E47
AVAILABILITY OF A/CONDITIONING			
OTHER			



CAWTHRA ROAD



QUEEN ELIZABETH WAY

FIGURE 57.

LU 1222-76  
ASTRA DRIVE

ASTRA SUBDIVISION

TIME	LOCATION	dBA Leq	LOCATION	dBA Leq	LOCATION	dBA Leq
Mar. 27/79 2:50-3:10 pm.	-facing QEW -front yard reference	70	Loc.2- shielded side, near ASTRA Dr.	58	Loc.3- backyard of Location 1	62
3:15-3:35	Loc.4- on Astra Dr. close to wall	64	Loc.5- behind wall on Astra Dr.	54		
Mar.28/79 2:20-2:40	-facing QEW -front yard reference	73	Loc.6-inside master bdrm.,2nd floor, closed windows	44		
2:40-3:00	"	73	Loc.6- inside master bdrm.,2nd floor, open windows	64		
3:01-3:06	"	73	Loc.6- behind front door,main floor			
3:15-3:35	Loc.7- near Cawthra, close to masonry wall	67	Loc.8- behind masonry wall near Cawthra	59		

NOTES- Front door of location 6 has leak in the bottom and the door is not solid.

-there is nobody living in the subdivision facing the QEW.

## APPENDIX TO PART V

The following noise information status reports are included to illustrate how the Ministry of the Environment staff in the Southeastern regional office, Kingston, co-ordinate the Ministry response to a land use issue. Ten of the reports refer to subdivision development and the other refers to a condominium plan in the Township of Gloucester, Ontario.

06T-76005

### NOISE INFORMATION

TYPE OF DEVELOPMENT - Subdivision

LOCATION - Township of Nepean  
Lots 17 & 17, Conc. III  
Tartan Development Corporation Subdivision

SIZE - 708 housing units (single family, semi-detached, town houses)

NOISE SOURCE - Since development is adjacent to the CNR tracks, there could be some problems related to noise. (the CNR bounds the area to the north).

RECOMMENDATION - It is considered that this nuisance noise source should be reflected in the subdivider's agreement and an appropriate information placed on title of each property advising that noise associated with normal rail traffic on this line can be anticipated.

COMMENTS - No comments were requested from the Noise Pollution Control Section on the plan, however, it could be arranged if it is considered that noise abatement measures should be designed into the proposal.

The last date of correspondence with the Ministry of the Environment was May 20, 1976.

NOISE INFORMATION

TYPE OF DEVELOPMENT - Subdivision

LOCATION - Township of Nepean  
Lots 16 & 17, Conc. III  
Tartan Development Corporation Subdivision

SIZE - 870 single, double, multiple family residential units.

NOISE SOURCE - CNR tracks bound area to the south.

RECOMMENDATIONS - A 50 foot buffer strip has been allowed between the railway property and the rear property lines; however, this in itself would not provide a significant reduction in noise levels. Therefore, unless the developer proposes additional noise attenuation features in this buffer zone which would reduce noise to sedirable levels, we (MOE) recommend that a suitable information be placed on title advising property purchasers that this nuisance noise condition exists.

The last correspondence from the Ministry of the Environment was dated April 23, 1976.

NOISE INFORMATION

TYPE OF DEVELOPMENT-Subdivision

LOCATION-Township of Kingston  
Part of Lot 3, Concession II  
Van Duinen Subdivision

SIZE-22 Single Family lots

NOISE SOURCE-CNR main line between Toronto and Montreal  
-Highway 33 Road Traffic

NOISE IMPACT-Present zoning may allow residential development close to the railway. If so, noise levels from the CNR may reach nuisance levels

RECOMMENDATIONS-It was recommended that, in view of the pollution considerations and the apparent limitations for reducing the problems at this site, property purchasers should be aware that some nuisance noise could be expected  
-It was also recommended that if this subdivision proceeds at a later date, reference should be made in the subdivider's agreement with the municipality to the matter of nuisance noise from both the railway traffic and road traffic on Highway 33, and that appropriate action be taken to forewarn future property owners of this matter.

ACTION TAKEN-Conditions of Draft Approval  
- that the owner agree via the subdivision agreement with the municipality, in wording acceptable to the MOE, to inform all prospective purchasers of the lots of this plan of the possibility of nuisance emanating from railway traffic on Canadian National Railway line and from road traffic on Highway 33.

Last correspondence from the Ministry of the Environment,  
July 23, 1975

Min. of Housing commented Sept. 13, 1976.

NOISE INFORMATION

TYPE OF DEVELOPMENT - Subdivision

LOCATION - Township of Cumberland  
Lot 25, Conc. 6 (Village of Vars)  
Vee Holdings Subdivision

SIZE - 20 lots single family

NOISE SOURCE - Engine noise from heavy equipment and trucks from operations of The Diamond Sand & Gravel Company.

- A main railway line crosses a road  $\frac{1}{4}$  mile from proposed site. Train traffic is very heavy (25 trains pass through Vars in a 24 hour period. Many of these are freight trains averaging 95 cars.)

NOISE IMPACT - The Diamond Sand & Gravel Co. operates a large pit approximately  $\frac{1}{4}$  mile north of the proposed subdivision. At present pastureland and a small section of bush, serve as buffer zones between the pit and the subdivision site. However, as the sand extracting operation involves the removal of trees the noise buffer will be lost.

- The Noise Pollution Control Section, reports that although the noise from passing trains would reach high levels in the subdivision, this would only occur for short periods of time and the noise levels fall within Ministry Criteria. The noise prediction program does not take into account the fact that the trains blow their whistle from  $\frac{1}{4}$  mile away from any crossing until they have reached the crossing.

RECOMMENDATIONS - It was recommended that the site not be developed on the basis of subsurface sewage disposal systems and private wells. (Contributing factors for this decision were a high watertable, poor drainage in the area, poor soil conditions and the potential noise problems.)

The last correspondence from the Ministry of the Environment was September 20, 1977.

NOISE INFORMATION

TYPE OF DEVELOPMENT-Subdivision

LOCATION-Village of Morrisburg  
Part of Lot 31, concession I

SIZE-66 Semi-Detached  
24 Single Family  
3 Multi-Family

NOISE SOURCE-Highway 31

NOISE IMPACT-excessive during peak traffic hours

RECOMMENDATIONS-no dwelling units be located within 200 feet of pavement on Highway 31

-will consider residential development within the noted areas (Lots 64, 65, 66, 75, 76, 77, 78 and Block C) subject to an acoustical study of this area indicating how noise abatement features may be included in the dwellings on these lots to reduce noise to acceptable levels

-developer should maintain a close contact with the Noise Pollution Control Section of this Ministry if an acoustical study is undertaken for the noted area

-alternative might be to trade off some of the Residential area next to the Highway for some of Block E parkland

ACTION TAKEN-Conditions of Draft Approval, (9) owner agree via the Subdivider's Agreement with the Municipality in wording acceptable to MOE not to develop lots 64, 65, 66, 75, 76, 77, 78 and Block C until such time that an acoustical study has been prepared to the satisfaction of the Noise Pollution Control Section of the Ministry of the Environment indicating how noise abatement features may be included in these lots and block to reduce noise to acceptable levels

Last correspondence from Ministry of the Environment, January 12, 1977

Min. of Housing commented July 5, 1977

NOISE INFORMATIONTYPE OF DEVELOPMENT-SubdivisionLOCATION-Township of Nepean  
Merivale Development Ltd.  
Part of Lot 31, Concession I  
Hillsdale SubdivisionSIZE-454 residential units including single, double, and multiple dwellingsNOISE SOURCE-noise levels from nearby CN-CP tracksNOISE IMPACT-Following a prediction of the noise levels on the lots nearest to the CN-CP tracks, it was found that the noise levels due to train passbys (at a distance of 150 feet from the tracks) are up to 15 dbA in excess of our criteria, particularly at night. Subjectively the noise levels are three times louder than we would recommend. Sleep and activity interference would be a very likely deleterious effect on dwelling occupants if the development were completed without the inclusion of noise control measuresRECOMMENDATIONS-Developer should investigate noise control measures on the site which will reduce both outdoor and indoor noise levels to acceptable levels.

eg. a)Site Planning-orientation of buildings and outdoor recreational areas with respect to noise sources, spatial separation such as insertion of sound-insensitive land uses between source and receiver and appropriate setbacks

b)Acoustical Barriers-berms, walls, favourable topographical features; other intervening structures

c)Architectural Design-room and corridor arrangement; blank walls, placement of windows, balconies and courtyards, building height

d)Construction-acoustical treatment of walls, ceilings, windows, doors, selection of acoustical materials and other control devices

ACTION TAKEN-The Regional Conditions and Amendments applying to the approval of the Final Plan for registration of Merivale Development Limited Subdivision

-#10, that the owner convey a strip of land 50 feet in perpendicular width, immediately abutting and throughout the full length of the Canadian National Railway right-of-way within the limits of the plan to the Township at no cost to the Township

┌ Last correspondence from Ministry of the Environment,  
April 22, 1977 ┘



-#11, That the owner agrees (via the subdivision agreement) to erect a barrier in the form of a six foot high chain link fence along the northern limits of the lots abutting the 50 foot buffer strip, prior to the occupancy of the homes on these lots. This shall be to the satisfaction of the Township of Nepean

-#12, That the owners shall agree, (in the subdivision agreement) to inform all purchasers of lots abutting on the CNR right-of-way that a chain link fence will be erected by the developer and that each owner of the above lots will be required to maintain the said fence on his property in a good state of repair. The subdivider's agreement shall be registered against the land.

#13, That the owner agrees (via the subdivision agreement) to screen and berm the 50 foot strip of land referred to in Condition 11 to provide a visual and noise barrier to the railroad operations. The height of the berm should be obtained in consultation with the Ministry of the Environment, Noise Impact Analysis Unit and the berm wall be installed to the satisfaction of the Township.

-#14, That the owner agrees (via the subdivision agreement) and registered against title, to include a clause to be inserted in the offer of purchase and sale to the property to ensure that prospective homeowners are aware of the rail line location.

The Noise Pollution Control Section recommends the following noise control measures:

1. Dwelling Units on Lots 1 to 15, 19, 20, 25 to 27, 37, 38, 63 to 70, 72, to 87 and 89 to 97 inclusive should be suitably ventilated, forced air ventilated or air-conditioned to allow at least second storey windows to remain closed during the summer months

2. A berm, solid wood fence or any combination of these to a total height of 8 feet (above finished grade level on the subdivision) with minimum surface density 4 lb./ft.<sup>2</sup> and no holes or gaps be erected along the entire length of Block A, the buffer zone established for this purpose.

3. Prospective and future buyers should be informed of the slight residual noise problem on the site by insertion of the following clause into the Agreements of Purchase and Sale and Deeds of Lots 1 to 14, 74 to 86 and 90 to 97 inclusive:

"Due to train traffic volumes, noise may be of concern, occasionally interfering with some activities of the occupants."

# NOISE INFORMATION

TYPE OF DEVELOPMENT-Subdivision

LOCATION-City of Kingston  
Crestview Subdivision  
Highway 401

NOISE SOURCE-traffic noise

NOISE IMPACT-slightly in excess of recommended criteria for outdoor recreational area and for individual backyards of lots 102 through 110

RECOMMENDATIONS-from site plan, indication that corrective measures have been taken to reduce noise impact on the outdoor recreational area (tot lot), and balconies located on building walls perpendicular to the highway

-other balconies were removed on the sides of buildings facing the highway

-building components specified in the drawings are capable of reducing outdoor noise levels to recommended maximum sound level limits, provided the windows are closed on the noisy side

-would recommend the subject development (Part I, the section bounded by Montreal Street, Sutherland Drive, the Western boundary of the subdivision and Highway 401) for final approval on receipt of an undertaking from the developer to institute the following:-

a) site plan and details as per drawings, S.1, S.2 and D.1 dated August, 1976 and March 1977 respectively

b) Noise screen partially surrounding the tot lot as per drawing L.1 dated February, 1977. The screen should be continuous, with no openings, gaps or slits between adjacent components

c) Since noise levels on the balconies are slightly in excess of the recommended criteria for outdoor recreational areas, the prospective owners or tenants should be warned by the appropriately worded clause in the deeds or rental agreements to the effect:

"Due to increasing traffic volumes, noise levels on this property may become of concern, noise occasionally interfering with some activities of the occupants

d) Windows and exterior doors as proposed by the developer:  
-window, a double hung 32 oz. panes separated by minimum one inch air space

-door sliding type, Acorn Insul Door Series 1200

e) Where natural ventilation may be restricted due to a closed window conditions air-conditioning units should be

provided

The above applies to the area of "Block A" and "B", where the layout of buildings and recreational area will be very much the same as discussed for "Block C"

-individual backyards of lots 102 through 110 will experience slight noise in excess of recommended criteria -so recommendation outlined in p. C applies

COMMENTS-Additional information-memorandum of Hazem Gidamy to John Manuel, on meeting of above subdivision with the Ministry of Housing

Last correspondence from the Ministry of the Environment, March 29, 1977

NOISE INFORMATIONTYPE OF DEVELOPMENT - SubdivisionLOCATION - Township of Kingston  
Part of Lot 5, Conc. 1  
Dacon Corp. Ltd. SubdivisionSIZE - 473 units (157 single family; 158 two family lots; two blocks for townhouses and/or apts.)NOISE SOURCE - 1. Norman Rogers Airport

2. quarry operating west of the proposed site

NOISE IMPACT - The proximity of the proposed subdivision to the Norman Rogers Airport may cause some discomfort to future residents and perhaps impair their enjoyment of their property. Substantial increases in air traffic could be expected in the near future.

- The operation of the quarry may present in terms of noise, odour, vibration and dust during operation.

RECOMMENDATIONS - It would appear desirable to use an information on title to forewarn future occupants of the subdivision of this noise source, also to get an opinion from the Federal Ministry of Transport on this matter.

- Recommended that a buffer zone of at least 400' in width be maintained between the quarry fence line and the nearest residence. To ensure adequate notification of future purchasers, it is also recommended that the potential problems arising from the operations be entered on Title.

COMMENTS - The Planning Board for the area, had recommended to Council, a separation distance of 700' although no actual recommendation was received from Council.

- Dacon Corp. Limited notes that it appears that the quarry is going to be closed within the next few years. Therefore they suggest that it would seem reasonable to plan the subdivision in the eventuality that the quarry ceases operation but only draft approve that portion outside the required buffer area.

The last government correspondence from the Ministry of Housing, February 8, 1977.

NOISE INFORMATION

TYPE OF DEVELOPMENT - Subdivision

LOCATION - City of Brockville  
Rosewood Park Subdivision

SIZE - 15 lots (Single Family)

NOISE SOURCE - CNR tracks are in close proximity

NOISE IMPACT - Following a prediction of train noise levels at a distance of 400 feet (the shortest distance between lots and the tracks on the new site plan) noise levels from trains were 8 dBA above the recommended sound level limits. Subjectively noise levels are almost twice as loud as recommended.

RECOMMENDATIONS - it was recommended that it be made a Condition of Approval that provision be made in the Subdivision Agreement to include the following statement in both the Agreement of Purchase and Sale and Deed for lots 1 through 15:

" Until such times as noise control measures are incorporated on completion of this development, noise levels due to trains will be of concern, noise interfering with some activities of the occupants. "

- the developer should remain in close contact with the Noise Pollution Control Section during site development.

ACTION TAKEN - The following conditions were incorporated in the approval of the final plan for registration of the subdivision:

#10. That the owner agrees in writing with the municipality in wording acceptable to the Noise Pollution Control Section of the Ministry of the Environment to the following

- a) to contact the Noise Pollution Control Section during the development of the site to ensure that noise intrusion from the railway is minimized to an acceptable level.
- b) to provide a clause in both the Agreement of Purchase and Sale and the deeds for Lots 1 to 15 inclusive to inform prospective purchasers of the possibility of noise intrusion from the railway until such time as noise control measures are incorporated on completion of this development;

#13. That prior to the signing of the final plan by the Minister, we are to be advised by the Ministry of the Environment that condition #10. has been carried out to their satisfaction, with a brief but complete statement detailing how this condition has been satisfied.

COMMENTS - R.M. Kostuch Associates Ltd. (Consulting Engineers)  
~~requested~~ that Condition #10 (b) be reworded to delete:

"until such time as noise control measures are incorporated on completion of this development." This was because this portion of Condition (b) implied some obligation on the part of the subdivider to develop the remainder of his holdings between the proposed subdivision and the Canadian National Railways. Satisfactory noise control measures could only be incorporated in a development of row townhouses, thus a change to a higher density residential zone would be required. The uncertainty of that eventuality together with the uncertainty of future market conditions for higher density housing make it unreasonable for the developer to make any commitment at this time to develop the lands.

The following clauses were to be added in both the Agreements of Purchase and Sale and Deeds for the transfer of the individual lots from the owner to the builder:

1. Condition #10 (a)  
" The Purchaser agrees to consult with and meet the requirements of the Noise Pollution Control Section of the Ministry of the Environment during the design and construction of the dwelling on the subject lands. "
2. Condition #10 (b)  
" The Purchaser acknowledges that he is aware of the possibility of noise emanating from the Canadian National Railways situate to the north of the subject lands.  
The Purchaser covenants to obtain a similar acknowledgement as in the preceding clause from any purchaser from him of the subject lands, such acknowledgement to be incorporated in both the Agreement of Purchase and Sale and Deed. "

The Ministry of the Environment suggested that the following wording be included in the agreement in relation to Condition #10 (a):

- " In order to reduce indoor noise from rail traffic on the Canadian National Railway to meet the recommended sound levels of the Ministry of the Environment, provision should be made for the installation of air conditioning in all dwellings in this subdivision. "

It was also considered that the noise acknowledgement clause for Condition #10 (b) would serve as an adequate interim method to advise of the outdoor noise concerns. This release was made with the understanding that outdoor sound levels in this portion of the development would be taken into consideration if and when the remainder of the site was developed.

The last correspondence from the Ministry of the Environment was Nov. 2, 1976.



NOISE INFORMATIONTYPE OF DEVELOPMENT - SubdivisionLOCATION - Township of Cumberland  
Lot 25, Conc. 6 (Village of Vars)  
Vee Holdings SubdivisionSIZE - 20 lots single familyNOISE SOURCE - Engine noise from heavy equipment and trucks from operations of The Diamond Sand & Gravel Company.

- A main railway line crosses a road  $\frac{1}{4}$  mile from proposed site. Train traffic is very heavy (25 trains pass through Vars in a 24 hour period. Many of these are freight trains averaging 95 cars.)

NOISE IMPACT - The Diamond Sand & Gravel Co. operates a large pit approximately  $\frac{1}{4}$  mile north of the proposed subdivision. At present pastureland and a small section of bush, serve as buffer zones between the pit and the subdivision site. However, as the sand extracting operation involves the removal of trees the noise buffer will be lost.

- The Noise Pollution Control Section, reports that although the noise from passing trains would reach high levels in the subdivision, this would only occur for short periods of time and the noise levels fall within Ministry Criteria. The noise prediction program does not take into account the fact that the trains blow their whistle from  $\frac{1}{4}$  mile away from any crossing until they have reached the crossing.

RECOMMENDATIONS - It was recommended that the site not be developed on the basis of subsurface sewage disposal systems and private wells. (Contributing factors for this decision were a high watertable, poor drainage in the area, poor soil conditions and the potential noise problems.)

The last correspondence from the Ministry of the Environment was September 20, 1977.

NOISE INFORMATION

TYPE OF DEVELOPMENT - Condominium Plan

SIZE - 95 residential units

LOCATION - Township of Gloucester  
Part S $\frac{1}{2}$  Lot 8, Conc. IV  
Blossom Park

NOISE SOURCE - road traffic on Highway #31

NOISE IMPACT - Traffic noise from highway 31 is likely to reach nuisance levels especially at rush hours. This problem is more pronounced in Blocks C,D,E,F and G which are only set back 40' from the highway.

- the total dBA excess equaled 8 dBA

RECOMMENDATIONS - If possible, appropriate noise control measures should be incorporated into this development prior to completion of construction. In the absence of such noise control measures the following clause (or one similarly worded) should be included in both the initial Agreements of Purchase and Sale, and Deeds or Rental Agreements of all affected units:

" Due to increasing traffic volumes, noise levels on this property are likely to become of concern, noise occasionally interfering with some activities of the occupants. "

- a treed buffer zone between the highway and the condominium would provide privacy for the occupants of these blocks.

The last correspondence from the Ministry of the Environment was dated Sept. 16, 1977 .





Fig.58 Goodwood Go-Kart Track, Uxbridge.  
Rented Concession Kart on Track.



Fig.59 Goodwood Go-Kart Track, Uxbridge.  
View from Road Intersection.

## PART VI ENFORCEMENT

This part of the audit is broken down into the various enforcement remedies available to the province, municipalities and private citizens under the legislation. To achieve noise control and noise abatement in the natural environment, the province utilises The Environmental Protection Act while municipalities resort to by-laws passed pursuant to Section 95a of the Act or pursuant to Section 354 of The Municipal Act. Large cities like the City of Toronto use their private cities Acts to pass by-laws for the purpose of regulating noise levels.

The following is a list of the legal actions that may be invoked to control noise in the natural environment using The Environmental Protection Act:

- Prosecution
- Control order
- Stop Order
- Certificate of Approval
- Program Approval
- Injunction

Information and charges under the Act may, and have been laid by Ministry staff, municipalities, environmental organizations and private citizens. On the other hand, municipal by-laws are usually enforced by appointed by-law enforcement officers and the police. On several occasions noise control has been effected indirectly by prosecutions under other legislation such as The Highway Traffic Act and municipal zoning and building by-laws and under The Public Health Act. Several instances of civil and injunctive proceedings have also come to the attention of the Ministry of the Environment and two cases are reported here.

### 1. The Environmental Protection Act

#### Day & Campbell, Hamilton - Prosecution

Was charged with violation of Section 14.1(c) of The Environmental Protection Act. The firm was convicted on one count and fined \$100 after a considerable sum was spent to abate the noise to the satisfaction of the Ministry and residents.

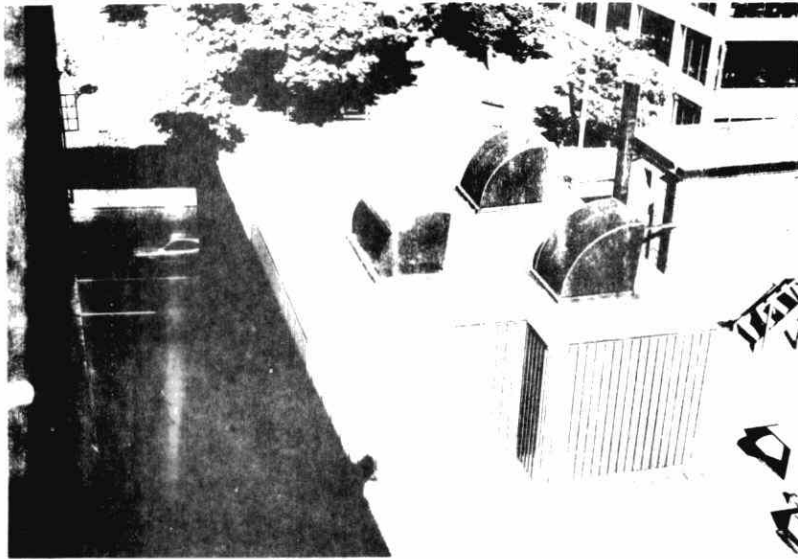


Fig.60 Enclosed Central Air Conditioning Plant on Roof of Kovac's Building.

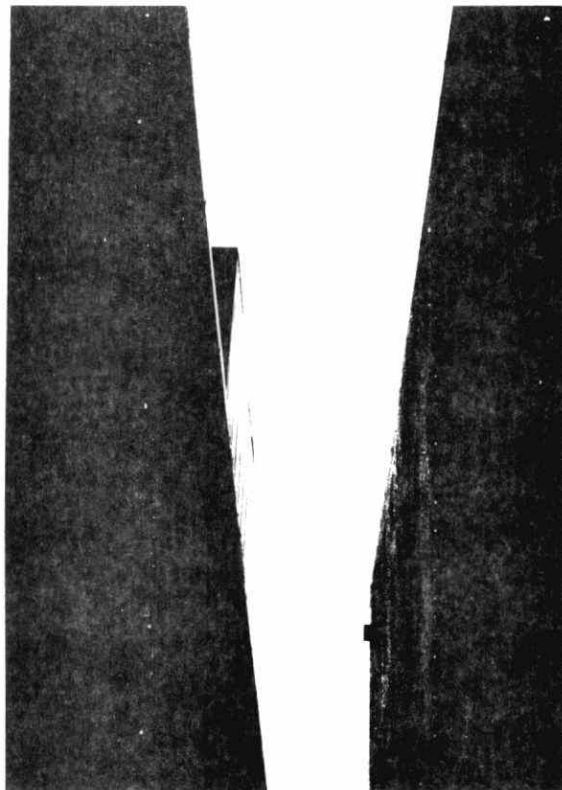


Fig.61 View of Spacing Between Kovac's Building and Adjacent Highrise Apartment Building.

Mr. M. Petti and Goodwood Go-Kart Race Track, Uxbridge - Prosecution

In a private prosecution the defendants were charged on 36 counts for emitting the contaminants noise and exhaust gases contrary to The Environmental Protection Act. All charges were dismissed by the Court in November, 1978. Not appealed.

Scarborough Rod & Gun Club, Uxbridge - Prosecution

A private prosecution of the Scarborough Rod and Gun Club resulting from the noise of gun fire was dismissed by the Court in 1979. An appeal has been filed.

Budd Heat Treating Ltd., Windsor - Prosecution

A charge has been laid by the Ministry of the Environment under Section 14.1(c) of the Act because of the emission of high levels of predominantly low frequency noise into the natural environment. Pending.

Kovacs Construction Ltd., Toronto - Prosecution

Following repeated complaints from residents living in the adjacent high-rise, a Control Order was issued by the Director requiring Kovacs to enclose and abate various noise sources on the roof of an office building on Yonge Street, Toronto. After the Control Order had expired without the required remedial measures being carried out, the firm was charged under the Act and convicted. The abatement measures were eventually completed to the satisfaction of the Ministry of the Environment after Kovacs had appealed the conviction and, therefore, the appeal was not contested and the conviction was overturned.

Portage Station Disco, Lake of Bays - Prosecution

The operators of the disco were charged by the municipality under the Act and under a municipal by-law for emission of excessive sound into the natural environment. A conviction in 1979 resulted in a \$400 fine.



Fig.62 Superior Chrome, Toronto.  
Fan Exhaust Located Left Background.

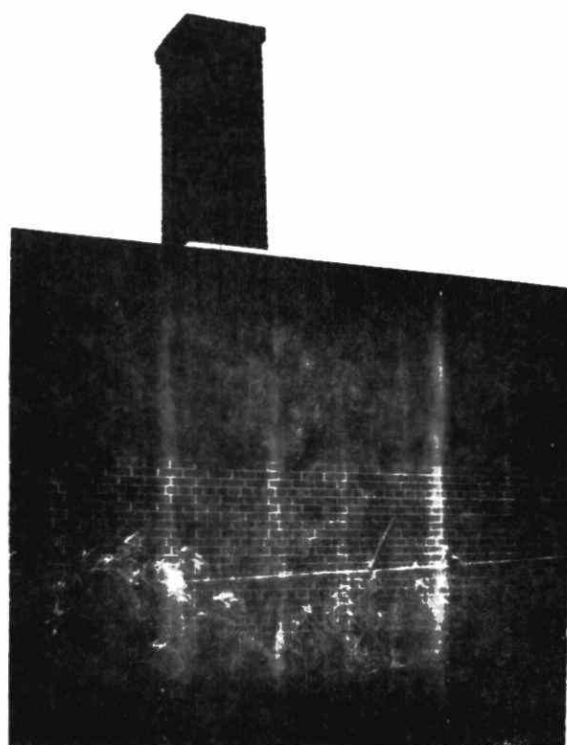


Fig.63. Fan Exhaust in Wall.

Superior Chrome Ltd., Toronto - Control Order

A complaint from the adjacent occupant in an industrial area resulted in the Director issuing a Control Order requiring Superior Chrome to fit a silencer to an exhaust vent having a very tonal discharge. The Control Order was complied with to the satisfaction of the Ministry and the complainant.

Kelson Springs Ltd., Toronto - Control Order

Repeated complaints by residents resulted in the Director issuing a Control Order requiring Kelson Springs to keep all doors and windows closed except for normal entry and exit. The firm appealed the Control Order to the Environmental Appeal Board and during the hearings gave notice of their appeal to the Courts. After many Court hearings, the firm decided to abandon the premises and consequently the Appeal Board hearing and Control Order were vacated.

J. Kovinsky Scrap Metal Ltd., Windsor - Certificate of Approval

Complaints from neighbours resulted in the firm agreeing to abate the noise from a scrap metal shredding mill. Based on the report and recommendation of a consultant, the Director has issued a Certificate of Approval for the firm to proceed with the necessary barrier construction.

Gulf Oil Clarkson Refinery, Mississauga - Certificate of Approval

A Certificate of Approval issued to Gulf Oil to complete an extensive expansion of their refinery to process lube oil, requires Gulf Oil to meet prescribed noise emission level criteria. A Ministry investigation is in progress as the new plant comes on stream.

Warren Bitulithic Ltd., Kitchener - Certificate of Approval

Complaints from nearby residents resulted in the Ministry requiring the firm to abate noise emissions into the natural environment. The detailed report of the successful abatement achieved as a result of a Certificate of Approval appears in another section of this audit.

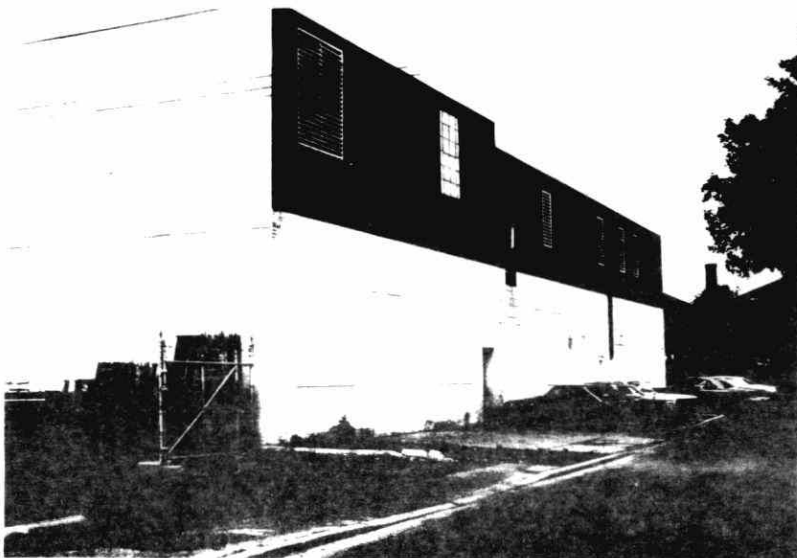


Fig.64 Kelson Springs Ltd., Toronto.  
View of rear of building.

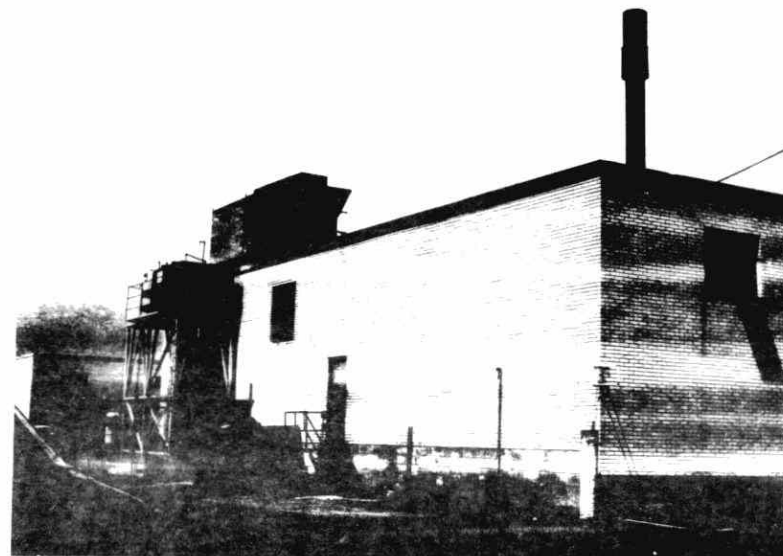


Fig.66 Millvan Plating Ltd., North York.  
View of Roof Mounted Ventilation Fan.



Fig.65 Kelson Springs Ltd., Toronto.  
Lane-way separating residences.



Fig.67 Millvan Plating Ltd., North York.  
View of Residences near Plant.

## 2. Municipal Noise Control By-Law Enforcement

Prosecutions assisted by evidence given by Provincial Officers

- City of North York v. Mr. Buffo  
Prosecuted under by-law No. 24654  
Air conditioner noise, offender agreed to move unit.
  
- City of North York v. Milvan Plating  
Prosecuted under by-law No. 24654  
Noise from ventilation fan. Fined \$200.
  
- City of North York v. Mr. Cohen  
A private prosecution under by-law No. 24654  
The case was withdrawn in August 1977 due to improper laying of the charge. The charge was re-tried in November 1977 and the Court dismissed the charge on the promise of the defendant to re-locate the offending air conditioner.
  
- Borough of York v. Associated Metals Ltd  
Prosecuted for excessive noise by the Borough under their by-law; the Court visited the site and as a result dismissed the charge. Remedies are now being sought by the Borough under a zoning by-law and this action is pending.
  
- Borough of Scarborough v. Mr. Grimaldi  
Prosecuted under by-law No. 16575  
A private prosecution under The Environmental Protection Act was dismissed when the complainant failed to appear. Fresh charges are being considered. No conclusion.
  
- City of Mississauga v. Mr. Franklin  
Private prosecution under by-law No. 7364  
The Court in November 1978 ordered Mr. Franklin to re-locate the air conditioner and to re-appear for sentencing at a later date.



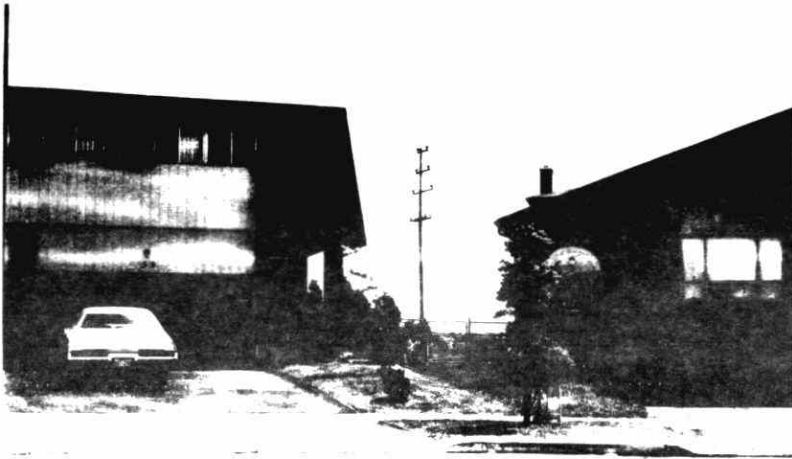


Fig.68 City of North York v Cohen.  
Central Air Conditioner.



Fig.70 Borough of Scarborough v Grimaldi.  
Central Air Conditioner.



Fig.69 Borough of York v Associated Metals.Ltd.  
Dropping Ball used to Smash Scrap.



Fig.71 Borough of East York v Johnston.  
Air Conditioner.

- Borough of East York v. Mr. Johnston  
Prosecuted under section 98 of the East York by-law.  
Complaints against Mr. Johnston for operating a noisy air conditioner were dismissed by the Court in September 1978.
- City of Kitchener v. Zettle Manufacturing Ltd  
Prosecuted under by-law No. 75-81-P  
The firm was convicted for causing excessive noise from the dumping of scrap steel and trash and fined \$100. Another charge of creating excessive punch press noise was dismissed by the Court. Further charges are expected to be laid by the City of Kitchener.

### 3. Municipal Zoning By-Law Enforcement

- Borough of Etobicoke v. Mr. DelRosso  
Prosecuted under the Etobicoke zoning by-law  
The Court has ordered Mr. DelRosso to re-locate a central air conditioner. A barrier has been built and the unit is not being operated. Penalty unknown.
- City of Hamilton v. Mr. Lapceovich  
Prosecuted under zoning by-law No. 6593  
Noise emissions resulting from backyard maintenance, repair and tuning of racing cars resulted in a conviction and a \$400 fine.

### 4. Civil Action

- Howatson v. G. & A. Holdings, Niagara Falls  
This action for damages was heard in the Ontario Supreme Court, Welland, in December 1977. Outcome unknown.  
Noise source has subsequently been reported destroyed by fire.



Fig.72 Zettle Manufacturing Ltd., Kitchener.  
View of Building Housing 800 Ton  
Press.

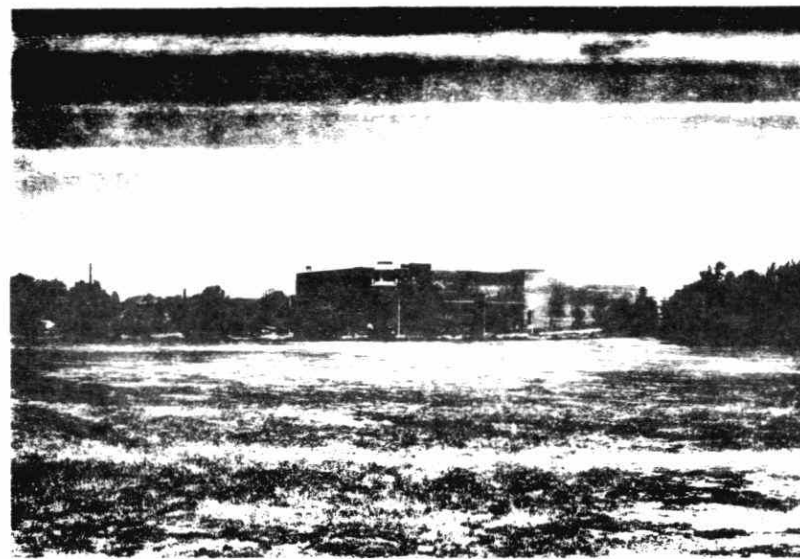


Fig.74 Howatson v G.&A.Holdings Ltd.,  
View of Building.



Fig.73 View of Zettle Plant and Nearest  
Residential Neighbour.

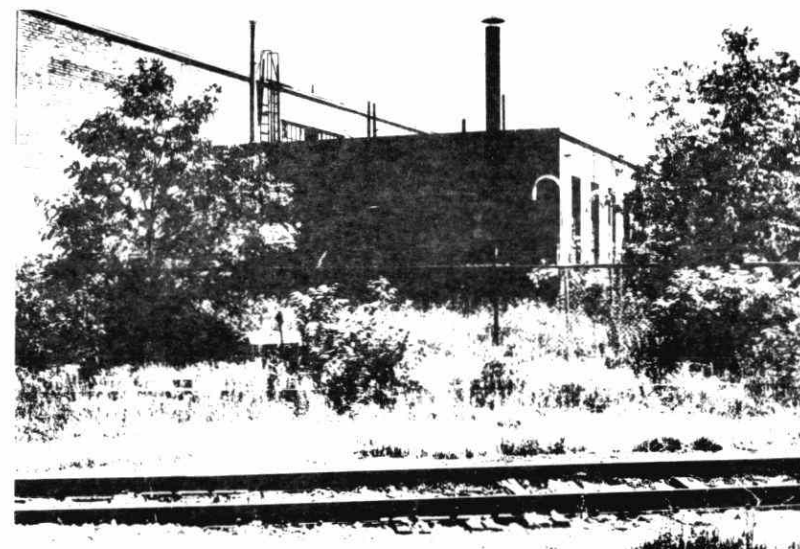


Fig.75 View of boilerhouse at the rear of  
G. & A.Holdings Plant.

- Titley et Al v. Sanilit Ltd., Alexandria

Noise emissions from a sawdust processing plant resulted in an action for damages for nuisance. The Court awarded \$3,700 in damages and has also enjoined the firm from continuing certain practices.

Notice of an appeal has been filed.

The cases listed above represent actions in which Provincial Officers of the Ministry of the Environment were involved either by carrying out noise investigations and filing reports with the Ministry pursuant to Section 83 of the Act, or by acting as witnesses under subpoena. These cases, we believe, represent only a small fraction of the ongoing litigation and prosecution of noise offenders in Ontario. A survey carried out in 1974 indicated that some municipalities are very diligent in regulating noise, particularly vehicle noise. The Highway Traffic Act being used extensively for this purpose.

## PART VII COMPLAINT INVESTIGATION AND STATISTICS

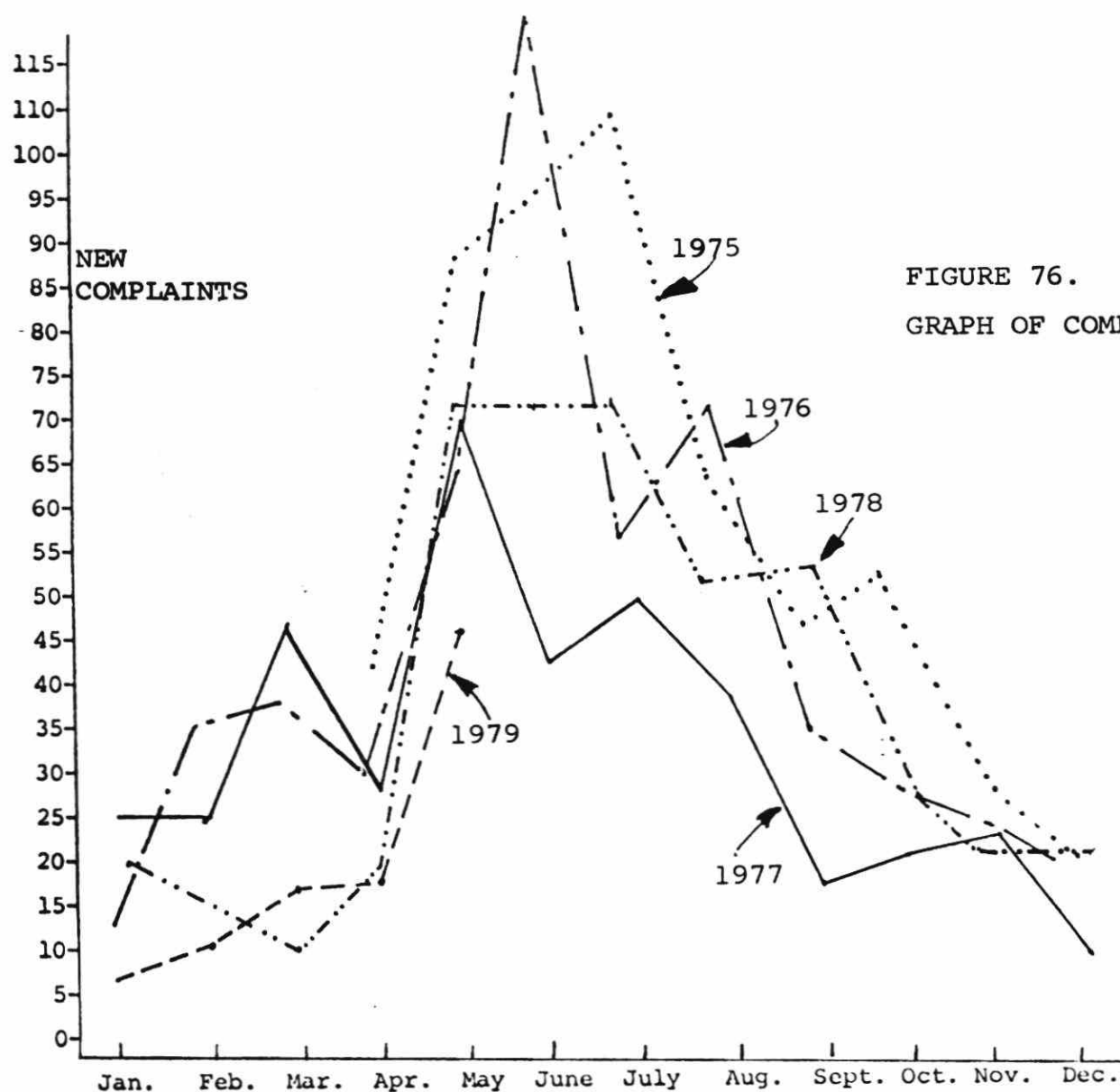
### INTRODUCTION:

When noise complaints are received by the Noise Pollution Control Section (NPCS), they are logged and filed for possible investigation. Some are filed for reference purposes while others are referred to the municipalities concerned. The complaints investigated by NPCS at this time only involve stationary noise sources.

For the purposes of this audit the investigation files from 1973 to 1978 have been examined and pertinent information extracted in the following format:

1. Part A - 1970, 71, 72 & 73, representing investigations before noise control guidelines were available.
2. Part B - 1974, 75, 76 & 77, representing investigations with guidelines in place.
3. Part C - 1978, with new 1976 guidelines.

The information listed includes a brief profile of complainants as well as an administrative study of the investigative process. The profile is aimed at finding out how many people are complaining, who they are and under what circumstances they complain. The administrative study will determine what other agencies have been involved in the investigation, how involved they have been, and whether more assistance is needed on either their part or that of NPCS.



COMPARATIVE CHART OF COMPLAINTS RECEIVED

<u>Month</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>	<u>1978</u>	<u>1979</u>
January	-	14	26	19	7
February	-	35	26	25	10
March	-	37	47	10	16
April	42	31	29	18	17
May	88	63	71	71	45
June	93	119	43	71	
July	107	53	52	71	
August	60	71	40	51	
September	43	29	18	53	
October	51	27	21	25	
November	28	28	23	17	
December	22	19	10	17	
<b>TOTALS</b>	<u>534</u>	<u>526</u>	<u>406</u>	<u>448</u>	

TABLE 6.  
NEW COMPLAINTS  
RECEIVED.

REGION	Y E A R				
	1975	1976	1977	1978	1979 (as of June 20)
Central	52	153	164	237	86
West-Central	17	62	76	120	42
Southeastern	2	16	2	5	5
Southwestern	5	14	5	13	4
Northeastern	1	2	4	0	0
Northwestern	0	3	1	2	0
Sub-Total	77	250	252	377	-
% Complaints	14.0%	50.0%	62.0%	84.0%	-

TABLE 7. Noise Complaints Referred to Noise Pollution Control Section  
from Regional Offices as Percentage of Total Complaints Received

77  
250  
252  
377  
776

TABLE 8. 1978 NEW NOISE COMPLAINT REFERRALS LISTED BY POINT OF ORIGIN

1. Central Region:

Toronto	8	Woodbridge	1
North York	16	Kleinburg	2
Weston	2	Richmond Hill	1
West Hill	1	Pickering	1
Scarborough	28	Whitby	1
Downsview	2	Newcastle	1
East York	7	Cavan	1
Bramalea	2	Burlington	4
Islington	1	Milton	1
Rexdale	1	Mimico	1
York	1	Oakville	1
Etobicoke	12	Caledon	1
Brampton	2	Medonte	1
Mississauga	14	Barrie	3
Bolton	1	Port Hope	1
Streetsville	1	Peterborough	1
Malton	1	Huntsville	1
Thornhill	1	Lake of Bays	1
Aurora	1		

2. West Central Region:

Hamilton	32	St. Catharines	4
Flamborough	1	Niagara Falls	2
Vinemount	1	Preston	1
Grimsby	1	Cambridge	5
Welland	2	Guelph	2
Vineland	1	Brantford	2
Port Colborne	1	Fergus	1

3. Southwestern Region:

Collingwood	2	Stratford	1
Meaford	1	Londesburg	1
Windsor	3	Goderich	1
Chatham	2		

4. Southeastern Region:

Demarestville	1	Thunder Bay	1
Picton	1	Kenora	1
Cornwall	1		
Alexandria	2		

5. Northwestern Region:



PART A 1970-73

For this period some 450 complaint files were reviewed.

Reasons for Complaints

- (a) Male complainants - 232 files  
The major reason for complaining was sleep disturbance, caused mainly by air conditioners, industrial noise, people-oriented noise, and vehicular noise.
- (b) Female complainants - 219 files  
The majority of complaints relate to sleep disturbance due to industry, construction, barking dogs, people-oriented noise, and music.
- (c) Group complainants - 43 files  
These are in the form of petitions from local associations, ratepayers groups, and neighbourhood groups.
- (d) Complainants friends - 7 files  
To add impetus to their initial complaint these people get neighbours or friends to complain as well.
- (e) Habitual complainers - 2 files  
People who complain about the same or different noise sources on a continuing basis.
- (f) Ulterior motive - 9 files  
These noise complaints may be due to a feud, grudge or dispute between the parties.
- (g) Medication and complaints - 30 files  
These people claim to have had to contact a physician regarding the effects of loss of sleep, headaches, annoyance and health effects.

(h) Cost factor - 21 files

These complainants expressed initial concern with the cost of abatement, and were hesitant to complain. Complaints mainly caused by industrial noise sources and air conditioners.

Administrative

The following is a breakdown of private and public involvement in the administrative process of the investigations. These will not necessarily add up to 450 files because more than one course of action may have been pursued.

(a) Special noise studies - 38 files

These files contain reports on studies conducted by NPCS outside consultants, engineers and others.

(b) Engineers (private) - 32 files

In-plant engineers often take responsibility for an industrial noise source and work with NPCS investigators.

(c) Consultants - 12 files

In some complex cases it was recommended that a consultant be retained by the owner of the noise source in order to correct the problem. This only involved industrial noise sources.

(d) Ontario Municipal Board - 10 files

In these cases, action pursued as far as the Ontario Municipal Board.

(e) City of Toronto Noise Group - 3 files

These files were referred to the City of Toronto because of the nature of the complaint.

(f) Minister's office - 53

The complaints were directed to the Minister's office primarily by M.L.A.'s, Associations, petitions or individuals.

- (g) Federal, Provincial, Municipal - 58  
These involve complaints made to elected representatives.
- (h) Mayor, or Reeve - 20 files.
- (i) Council (Regional, municipal) - 43 files
- (j) By-Law Officers (municipal) - 13 files  
These were referred from NPCS to the local municipal By-Laws office. At present there is a more enforced policy of not investigating complaints which should be and are referred to municipalities.
- (k) Police - 17 files  
These are cases where the noise source is a temporary people-oriented activity such as parties or vehicle noise and tire-squeeling.
- (l) Lawyers - 37 files  
These are situations where a complainant uses a lawyer to threaten legal action against the owner of a noise source, lay charges, or to actually go to court. The latter will be detailed in a separate section.

From an internal administrative standpoint the extent of completion for the 450 files was reviewed.

- (a) Complaints, not completed - 80 files  
Possible reasons for no completion include no applicable legislation or regulations, noise from construction, blasting, carwash, subway, carnivals, amplified music, gun clubs, sandblasting, bird-scaring devices and other seasonal sources such as chainsaws and other power tools. Many of the above are noise sources which would not normally be under direct NPCS or Ministry jurisdiction.

- (b) Complaints, completion not known - 52 files  
Possible reasons include, the fact that it is a long term project, the complaint is still active, complainant has dropped the complaint, source owner just shut off source, equipment not suited to complaint, there were no regulations.
- (c) Complaints, definite completion - 195 files  
This only means that a decision was reached not necessarily in favour of the recommended abatement.
- (d) No internal decision - 123  
This resulted in no investigation at all.

#### PART B - 1974-77

For this period there were some 1144 files marked for investigation and reviewed for the audit. A discrepancy in the tabulation of the overall number of files exists because there were 213 investigation numbers set aside for the former Hamilton Noise Section which were never used. There were also 70 duplicate files that either someone had neglected to check for a previous entry or that there were new complaints listing the same source, but with that source being part of another building or complex with the same address. In 1975 The Environmental Protection Act was amended to allow municipalities to pass and enforce By-Laws pertaining to noise and vibration. The investigations were therefore done with the backing of some noise control guidelines.

#### Complainants and Complaints

- (a) Male complainants - 666 files
- (b) Female complainants - 585 files
- (c) Group complainants - 66 files
- (d) Habitual complainers - 5 files
- (e) Ulterior motives - 9 files
- (f) Medication and complaints - 29 files
- (g) Cost factor - 24 files

Administrative

- (a) Special noise studies - 53 files
- (b) Engineers (private) - 14 files
- (c) Consultants - 37 files
- (d) City of Toronto Noise Group - 49 files
- (e) MOE Minister's office - 49 files
- (f) Federal, Provincial, Municipal, or Local - 120 files
- (g) Mayor, or Reeve - 19 files
- (h) Council (Regional municipal) - 31 files
- (i) By-Law Officers (municipal) - 78 files
- (j) Police - 30 files
- (k) Lawyers - 44 files

For the internal administrative aspect, the extent of completion for the 1144 files was reviewed.

- (a) Complaints, not completed - 71 files
- (b) Complaints, completion not known - 70 files
- (c) Complaints, definite completion - 720 files
- (d) Complaints, no internal decision - 283 files

## PART C - 1978

For the year 1978, there were 448 noise complaints logged. Of these 72 were referred elsewhere, including the Toronto Noise Group, municipal By-law Officers, police, or other public agencies. There were therefore 376 complaints logged and filed for investigation. This was a year to test the Model Municipal Noise Control By-law in preparation for the final by-law to be released at a later date.

### Types of Complaints (noise sources)

Heating, ventilating, air conditioning	- 95
Industrial	-165
Commercial	- 1
Construction, Quarries, Blasting	- 73
Private Transportation	- 6
Public Transportation	- 5
Environment Canada, Federal	- 11
Traffic	- 8
Various, not listed categories	- 84
TOTAL	<u>448</u>

### Complainants and Complaints

- (a) Male complainants - 141 files
- (b) Female complainants - 88 files
- (c) Group complainants - 7 files
- (d) Ulterior motives - 2 files

### Administrative

- (a) City of Toronto Noise Group - 8 files
- (b) Hamilton Noise Group - 7 files
- (c) MOE Minister's Office - 12 files
- (d) Federal, Provincial, Municipal, Local - 28 files
- (e) Mayor or Reeve - 10 files
- (f) By-Law officers (municipal) - 26 files
- (g) Police - 4 files
- (h) Lawyers - 8 files

## PART VIII TRAINING AND PUBLIC EDUCATION

With the advent of the Model Municipal Noise Control By-Law, first published in March 1975, a series of public education seminars and, later, technology transfer seminars and training courses were offered by the Ministry of the Environment.

### Public Seminars on Noise By-Law

1975	- Toronto	3	
	Ottawa	1	
	Kingston	1	Equivalent training
	Sudbury	1	time:
	Hamilton	1	90 Trainee weeks.
	London	1	
	Thunder Bay	1	

### Seminars on Noise Control in Land Use Planning

2 Day seminars open to the public, the housing and construction industry and municipalities.

1977	- Toronto	3	
	Ottawa	1	
	Kingston	1	Equivalent training
	Hamilton	1	time:
	Thunder Bay	1	180 Trainee weeks
	London	1	
	North Bay	1	

### Training Program - One Week Courses

#### Environmental Acoustics Technology

	<u>Acoustics I</u>	<u>Acoustics II</u>	<u>Acoustics III</u>
1975/76	81	57	52
1976/77	13	12	22
1977/78	21	21	18
1978/79	<u>12</u>	<u>14</u>	<u>-</u>
	127	104	92

Acoustics Technology in Land Use Planning

1976/77	49
1977/78	65
1978/79	<u>14</u>
	128

Total Equivalent Acoustics Training Time:

		<u>Trainee Weeks</u>
Model By-Law Seminars	(1 day)	90
Land Use Planning Seminars	(2 days)	180
Acoustics Technology for Enforcement	(1 week)	323
Acoustics in Land Use Planning	(1 week)	<u>128</u>
	Total	721





(h) Cost factor - 21 files

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Administrative

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These are cases where the noise source is a temporary people-oriented activity such as parties or vehicle noise and tire-squeeling.
- (l) Lawyers - 37 files  
These are situations where a complainant uses a lawyer to threaten legal action against the owner of a noise source, lay charges, or to actually go to court. The latter will be detailed in a separate section.

From an internal administrative standpoint the extent of completion for the 450 files was reviewed.

- (a) Complaints, not completed - 80 files  
Possible reasons for no completion include no applicable legislation or regulations, noise from construction, blasting, carwash, subway, carnivals, amplified music, gun clubs, sandblasting, bird-scaring devices and other seasonal sources such as chainsaws and other power tools. Many of the above are noise sources which would not normally be under direct NPCS or Ministry jurisdiction.

- (b) Complaints, completion not known - 52 files  
Possible reasons include, the fact that it is a long term project, the complaint is still active, complainant has dropped the complaint, source owner just shut off source, equipment not suited to complaint, there were no regulations.
- (c) Complaints, definite completion - 195 files  
This only means that a decision was reached not necessarily in favour of the recommended abatement.
- (d) No internal decision - 123  
This resulted in no investigation at all.

#### PART B - 1974-77

For this period there were some 1144 files marked for investigation and reviewed for the audit. A discrepancy in the tabulation of the overall number of files exists because there were 213 investigation numbers set aside for the former Hamilton Noise Section which were never used. There were also 70 duplicate files that either someone had neglected to check for a previous entry or that there were new complaints listing the same source, but with that source being part of another building or complex with the same address. In 1975 The Environmental Protection Act was amended to allow municipalities to pass and enforce By-Laws pertaining to noise and vibration. The investigations were therefore done with the backing of some noise control guidelines.

#### Complainants and Complaints

- (a) Male complainants - 666 files
- (b) Female complainants - 585 files
- (c) Group complainants - 66 files
- (d) Habitual complainers - 5 files
- (e) Utterior motives - 9 files
- (f) Medication and complaints - 29 files
- (g) Cost factor - 24 files

Administrative

- (a) Special noise studies - 53 files
- (b) Engineers (private) - 14 files
- (c) Consultants - 37 files
- (d) City of Toronto Noise Group - 49 files
- (e) MOE Minister's office - 49 files
- (f) Federal, Provincial, Municipal, or Local - 120 files
- (g) Mayor, or Reeve - 19 files
- (h) Council (Regional municipal) - 31 files
- (i) By-Law Officers (municipal) - 78 files
- (j) Police - 30 files
- (k) Lawyers - 44 files

For the internal administrative aspect, the extent of completion for the 1144 files was reviewed.

- (a) Complaints, not completed - 71 files
- (b) Complaints, completion not known - 70 files
- (c) Complaints, definite completion - 720 files
- (d) Complaints, no internal decision - 283 files

## PART C - 1978

For the year 1978, there were 448 noise complaints logged. Of these 72 were referred elsewhere, including the Toronto Noise Group, municipal By-law Officers, police, or other public agencies. There were therefore 376 complaints logged and filed for investigation. This was a year to test the Model Municipal Noise Control By-law in preparation for the final by-law to be released at a later date.

### Types of Complaints (noise sources)

Heating, ventilating, air conditioning	- 95
Industrial	-165
Commercial	- 1
Construction, Quarries, Blasting	- 73
Private Transportation	- 6
Public Transportation	- 5
Environment Canada, Federal	- 11
Traffic	- 8
Various, not listed categories	- 84
TOTAL	<u>448</u>

### Complainants and Complaints

- (a) Male complainants - 141 files
- (b) Female complainants - 88 files
- (c) Group complainants - 7 files
- (d) Ulterior motives - 2 files

### Administrative

- (a) City of Toronto Noise Group - 8 files
- (b) Hamilton Noise Group - 7 files
- (c) MOE Minister's Office - 12 files
- (d) Federal, Provincial, Municipal, Local - 28 files
- (e) Mayor or Reeve - 10 files
- (f) By-Law officers (municipal) - 26 files
- (g) Police - 4 files
- (h) Lawyers - 8 files

## PART VIII TRAINING AND PUBLIC EDUCATION

With the advent of the Model Municipal Noise Control By-Law, first published in March 1975, a series of public education seminars and, later, technology transfer seminars and training courses were offered by the Ministry of the Environment.

### Public Seminars on Noise By-Law

1975	- Toronto	3	
	Ottawa	1	
	Kingston	1	Equivalent training
	Sudbury	1	time:
	Hamilton	1	90 Trainee weeks.
	London	1	
	Thunder Bay	1	

### Seminars on Noise Control in Land Use Planning

2 Day seminars open to the public, the housing and construction industry and municipalities.

1977	- Toronto	3	
	Ottawa	1	
	Kingston	1	Equivalent training
	Hamilton	1	time:
	Thunder Bay	1	180 Trainee weeks
	London	1	
	North Bay	1	

### Training Program - One Week Courses

#### Environmental Acoustics Technology

	<u>Acoustics I</u>	<u>Acoustics II</u>	<u>Acoustics III</u>
1975/76	81	57	52
1976/77	13	12	22
1977/78	21	21	18
1978/79	<u>12</u>	<u>14</u>	<u>-</u>
	127	104	92

Acoustics Technology in Land Use Planning

1976/77	49
1977/78	65
1978/79	<u>14</u>
	128

Total Equivalent Acoustics Training Time:

		<u>Trainee Weeks</u>
Model By-Law Seminars	(1 day)	90
Land Use Planning Seminars	(2 days)	180
Acoustics Technology for Enforcement	(1 week)	323
Acoustics in Land Use Planning	(1 week)	<u>128</u>
	Total	721



